Suicide & self-harm monitoring

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Over 3,000 deaths by suicide occur each year in Australia

In 2021, there were 3,144 deaths by suicide - an average of about 9 deaths per day - with an age-standardised rate of 12.0 per 100,000 population.

Males are 3 to 4 times more likely to take their own life than females

In 2021, there were 2,358 male deaths at a rate of 18.2 per 100,000; there were 786 female deaths at a rate of 6.1 per 100,000. In 2021, the number of deaths by suicide was higher for males than females in all reported age groups.

Females are more likely to attempt suicide than males or be hospitalised for intentional self-harm than males

Rates of ambulance attendances for suicide attempt and self-injury were higher for females than males. In 2020-21 females made up almost two-thirds (66%) of intentional self-harm hospitalisations.

There is no evidence that suspected deaths by suicide have increased in recent years

Published data from the suicide registers in New South Wales, Victoria and Queensland show that the numbers of suspected deaths from suicide in 2020 and 2021 were similar to previous years.

Suicide is the leading cause of death for young people

Over one-third of deaths in Australians aged 15-24 were due to suicide in 2021.

Suicide rates are more than twice as high in young Indigenous Australians compared to non-Indigenous Australians

In 2017-2021, the age-specific rate of suicide deaths was 3.1 times higher in Indigenous Australians aged 0-24 and 2.9 times higher in those aged 25-44, than non-Indigenous Australians.

The highest proportion of deaths by suicide occur during mid-life

More than half of all deaths by suicide in 2021 (53%) occurred in people aged 30-59 (1,653 deaths).

Suicide rates are highest among middle aged and older males

Since 2008, the highest suicide rates have generally been among males aged 40-49 and over 85.

Results of a birth cohort analysis show trends in suicides have changed over time

Suicide rates for the most recently born female cohorts are higher than those for earlier female cohorts at the same age while suicide rates for the most recently-born male cohorts are similar to, or lower than, earlier male cohorts at the same age.

Using linked data, the estimated suicide risk is higher among those with fewer years of education

Among males aged 25-54 with secondary school or no education, the cumulative suicide risk is 2.6 times higher than among males with a university degree. This gradient between highest and lowest levels of educational attainment for females was consistent with that seen for males - with a smaller ratio (1.6 times).

Suicide and Self-harm monitoring data

Suicide and Self-harm Monitoring brings together key statistical data on suicide and self-harm from multiple national sources that will be updated regularly as new data become available. Here, you can examine the data through interactive visualisations and read information on the demographics, trends, methods and risk factors of suicide and self-harm in Australia.

This website represents only one part of a comprehensive program of work on suicide and self-harm in Australia by the AIHW (for more information visit About the Suicide and Self-harm Monitoring System).

Why is it important to collect data about suicide and self-harm?
Monitoring of suicide and intentional self-harm—how many people harm themselves, when, where and how—can provide a better understanding of the nature of suicide and self-harm in Australia and help determine who may be at increased risk. Reporting of this data can raise community awareness of suicide and self-harm, further research, improve responses and support services for those that need them, and inform the design and targeting of suicide prevention activities.

**Considerations when using these data**

There are several considerations to keep in mind when examining suicide and self-harm data and information in Australia.

**Deaths by suicide**

The assembling and national reporting of deaths by suicide has up to an 18-month time lag. Deaths by suicide may be presented by year of occurrence of death or year of registration. Although reporting of deaths by suicide by year of death can provide more reliable information on trends in occurrence than reporting by year of registration, the latest data available may underestimate the number of deaths, especially those in the later months of the year, due to a lag in registration. For this reason, and unless otherwise specified, year of registration of death has been used to allow the latest year of data to be compared with previous years. In both cases, the latest years of data are coded with preliminary causes of death information and may underestimate causes of death that are usually certified by a coroner, including deaths by suicide. For more information on how deaths are registered, coded and updated, visit Technical notes.

**Suspected deaths by suicide**

Suicide registers that exist in several jurisdictions can provide more timely data on suspected deaths by suicide. Recent surveillance data from suicide registers are preliminary and may change over time, typically upon completion of the coronial investigation. Suicide registers have been established in New South Wales, Victoria, Queensland, Western Australia, South Australia and Tasmania. The AIHW is also working with State Coroners and Department of Health officials Australian Capital Territory and Northern Territory to establish suicide registers in their jurisdiction.

The AIHW has been receiving data on suspected suicide deaths on a weekly basis since April 2020, fortnightly basis in 2021, and monthly basis in 2022. The data are used to inform governments' decision making and response to the pandemic. Due to the highly sensitive nature of coronial investigations, the AIHW will not publicly release jurisdictional data unless they have been published by the relevant data custodians (visit Suspected deaths by suicide).

**Hospital admissions**

Hospital admissions data are collated as an annual release with a 12-month lag.

**Ambulance attendances**

Ambulance data are currently available for some states and territories for selected months from 2018 to 2021 (visit Ambulance attendances: suicidal and self-harm behaviours), with monthly data from January 2021. In addition, monthly ambulance data for Victoria from January to March 2021 are also reported (visit COVID-19). Further information on the collection of data and sources is available in the Technical notes.

**Issues with small numbers and the need for caution**

Deaths by suicide are statistically rare events. Small numbers can raise privacy and confidentially issues but also statistical concerns. For this report, values based on small numbers of deaths, hospitalisations for intentional self-harm or ambulance attendances have been suppressed in order to maintain data confidentiality, and/or avoid publishing statistics of low reliability. Visit Technical notes for further information.

The statistics on deaths by suicide reported here fluctuate from one period to the next—mostly due to small counts (and in the case of females, very small counts)—especially in many smaller subgroups (for example, individual age groups or small geographic areas). Estimates of rates are also subject to random variability. Statistics based on small numbers of deaths by suicide should be interpreted with caution and all rates and their comparison with rates in other populations should be reported in context. For further insight into the methodological challenges and statistical issues of monitoring suicide and self-harm, visit Suicide Mortality in Australia: Estimating and Projecting Monthly Variation and Trends From 2007 to 2018 and Beyond.

**How to use the interactive data visualisations**

- Due to large data sets, visualisations may take time to load.
- Visualisations are compatible with Chrome, Microsoft Edge and Firefox.
- Each panel may contain more than 1 visualisation. You can interact with the visualisations to see the specific data you are interested in by either selecting from the filter(s) at the bottom of the chart, or in the case of maps, from the pop up box by clicking on an area of interest.
- Hover over each data point to see the underlying data and, if available, further details.
- The Data downloads page provides the source data as Excel (.xlsx) files. The relevant source supplementary table is cited at the bottom of each visualisation.
- Each visualisation may be downloaded and exported or shared.
- A print friendly PDF of all pages of text and the default visualisations related to suicide and self-harm may also be downloaded—click on the ‘Download all data pages’ button. Visit Technical notes for information about data sources, data quality and methodology.

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Suicide & self-harm monitoring

Suicide & self-harm monitoring: Deaths by suicide in Australia

If at any point you feel worried about harming yourself while viewing the information on this website - or if you think someone else may be in danger - please stop reading and seek help.

Important points to remember about deaths by suicide:

Each statistic represents a person - with a family and community grieving for their loss
Although it is a relatively rare cause of death - in 2021, 1.8% of all deaths were by suicide - it can have devastating and long-lasting effects on those left behind.

The reasons people take their own life are complex
Suicide can affect anyone - regardless of their personal characteristics and family background - but some populations are at greater risk. There is also no single reason why a person chooses to end their life - the reasons are often complex. For information on risk factors see Behaviours and risk factors.

Deaths by suicide are preventable
Monitoring the number, trends and rates of suicide in Australia is key to understanding who is at risk and for the planning and targeting of suicide prevention activities.

It is our endeavour that by bringing together various data sources we can strengthen the evidence base to build a more coherent picture of suicide and self-harm in Australia in order to improve the effectiveness of suicide prevention.

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Deaths by suicide over time

Numbers and rates of deaths by suicide change over time as social, economic and environmental factors influence suicide risk. The data visualisations below provide an overview of the characteristics of people who have died by suicide in Australia since 1907, looking at trends and variations by sex and age - how many there were, how old they were when they died, and the methods used over time. This analysis may provide useful information on potentially preventable factors, such as restricting access to means of suicide and reducing the risks posed by social or economic factors. Over time, the accuracy and quality of the data collected have been influenced by a number of factors including changes in legislation, technology and a reduction in social stigma.

Suicide deaths by sex, Australia, 1907 to 2021.

The line graph shows age-standardised rates of suicide for males, females and persons from 1907 to 2021. Users can also choose to view the number of deaths by suicide and male to female rate ratios from 1907 to 2021 and median age at death by sex from 1964 to 2021. The data can be viewed for any period between the years for which data are available.

Suicide deaths by sex, Australia, 1907 to 2021

In 2021 there were 3,544 suicide deaths for persons (12 per 100,000 population)
In 2021 there were 2,355 suicide deaths in males (18.2 per 100,000 population)
In 2021 there were 786 suicide deaths in females (6.1 per 100,000 population)

Numbers of deaths by suicide increased steadily over the first half of the 20th Century (from 461 in 1907 to 760 in 1950), with peaks and troughs in numbers of suicides corresponding with significant world events (see below). However, since the 1950s numbers of deaths by suicide increased more steeply over time - in part driven by population growth. Peaks in numbers of deaths by suicide occurred during the 1960s and late 1990s. Since the mid-2000s numbers of deaths by suicide in Australia have increased, reaching over 3,000 Australians dying by suicide by 2015.
Have suicide rates changed over time?
Between 1907 and 2021, age-standardised suicide rates in Australia ranged from 8.4 deaths per 100,000 population per year (in 1943 and 1944) to 18.4 in 1963.

- Suicide rates peaked in 1913 (18.0 deaths per 100,000 population), 1915 (18.2), 1930 (17.8), 1963 (18.4) and 1967 (17.7). These peaks tended to coincide with major social and economic events or changes, see Impact of social and economic events.
- Suicide rates tended to increase from 1907 to 1915 (from 16.9 to 18.2 deaths per 100,000 population). Rates then fluctuated throughout the late 1910s and early 1920s (from 13.1 deaths per 100,000 population in 1918 to 16.2 in 1920, returning to 12.8 in 1922), before increasing to a peak of 17.8 in 1930.
- Rates then declined throughout the 1930s and early 1940s, reaching a low of 8.4 deaths per 100,000 population in 1943 and 1944 (however, suicide rates for the war years may have been underestimated, see Impact of social and economic events).
- Rates tended to increase throughout the 1950s, peaking at 18.4 deaths per 100,000 population in 1963. Rates remained high throughout the 1960s while the 1970s and early 1980s saw a decline in rates (from 15.4 deaths per 100,000 population in 1971 to 11.6 in 1984).
- Rates began to rise in 1985 and fluctuated from 14.3 in 1987 to 11.9 in 1993 with a recent peak of 14.8 in 1997. This was followed by sustained declines over the early 2000s, with a low of 10.2 per 100,000 population in 2006.
- After 2006, suicide rates began to rise, partly due to improvements in data quality and capture (see below). In 2021, the rate was 12.0 deaths per 100,000 population - down from a post-2006 high of 13.2 in 2017. It is important to note that deaths registered in 2020 and 2021 are preliminary and as such, are subject to revision (see below).

It is important to note that deaths by suicide were underestimated in the collection of routine deaths data, particularly in the years before 2006 (AIHW: Harrison et al 2009; De Leo, 2010; AIHW: Harrison & Henley 2015). Since then, the Australian Bureau of Statistics (ABS) has introduced a revisions process to improve data quality by enabling the revision of cause of death for open coroner’s cases over time. Deaths registered in 2020 and 2021 are preliminary and data for 2019 are revised and therefore, data for these years are subject to further revision by the Australian Bureau of Statistics. Data from 1907 to 2018 are final (for further information see Technical notes).

What’s changed in the last decade?
Please note: small numbers can result in large yearly variation in suicide rates. Caution is advised when making year to year comparisons.
- Over the last decade, the age-standardised suicide rate for males increased from 16.2 deaths per 100,000 population in 2011 to 18.2 in 2021. Female rates also increased from 5.1 deaths per 100,000 population in 2011 to 6.1 in 2021.

For detailed analysis of recent trends in suicide in Australia, see Suicide Mortality in Australia: Estimating and Projecting Monthly Variation and Trends From 2007 to 2018 and Beyond.

Impact of social and economic events
While the reasons for an individual’s suicide death are personal and often complex, overall peaks and troughs in rates and numbers of deaths by suicide historically coincide - more or less - with social and economic events.

Falls in the male suicide rate coincided with both World Wars 1 and 2. These falls are at least partly a statistical artefact due to the fact that deaths from all causes (including deaths by suicide) of Australian service personnel while overseas were not included in Australian death registration data, while population estimates were not adjusted to allow for the absence of these personnel (AIHW 2005; AIHW: Harrison & Henley 2014).

The highest annual age-standardised rate for males in the last century occurred in 1930 (29.8 deaths per 100,000 population), during the Great Depression - a period of high unemployment, particularly among males. The rise in both male and female suicide rates in the 1960s has been attributed, in part, to the unrestricted availability of barbiturate sedatives (Oliver & Hetzel 1972; Whitlock 1975). Subsequent falls in these rates in the late 1960s and early 1970s have in turn been attributed to the introduction of restrictions to the availability of these drugs in July 1967 (AIHW: Harrison & Henley 2014). While high rates of suicide in the late 1980s and early 1990s also coincided with a period of economic uncertainty in Australia, the social and economic disruption related to the COVID-19 pandemic has not seen an increase in the number of suspected deaths by suicide referred to coroners courts.

Males have consistently higher rates of suicide than females
Since 1907, the male age-standardised suicide rate has been consistently higher and more variable than the female rate. Variations in the overall suicide rate in Australia have been largely driven by changes in the male suicide rate.

The peak in overall suicide rates in 1930 was driven by an increase in male suicide rates, peaking at 29.8 deaths per 100,000 in 1930 - the highest rate ever recorded. Similarly, the increase in overall suicide rates in the 1990s was also mainly driven by an increase in male rates. The peak in the 1960s reflects a rise in suicide rates for both males and females.

The male suicide rate ranged from a high of 5.6 times that of females in 1930 to lows of less than twice the female rate in the 1960s and early 1970s - mainly due to the marked rise in female suicide rates at this time. Since then, the male suicide rate has fluctuated around 3-4 times that of the female rate.

Although males are more likely to die by suicide, females are hospitalised for intentional self-harm (with and without suicidal intent) almost twice as frequently as males (see Intentional self-harm hospitalisations). Furthermore, ambulance attendance data reporting on attendances for suicide attempts between 2018 and 2020 suggest females are more likely to attempt suicide than males (see Ambulance attendances, suicidal and self-harm behaviours).
Patterns of suicide by age have changed over time

Age-specific suicide rates for males are higher than those for females across all reported age groups for all years. Use the year slider to see how patterns of suicide in males and females have changed in Australia over time. Hover over the graph to display the tooltip to see the trend in deaths by suicide by sex over time for each age group. The age distribution of deaths by suicide is similar for males and females. The highest proportion of deaths by suicide occur during mid-life. More than half of all deaths by suicide (53%) in 2021 occurred in people aged 30–59 (1,653 deaths), compared with 22% for those aged 15–29, and 25% for those aged 60 and over.

In 2021, the highest suicide rate for males occurred in those aged 85 and over (36.4 deaths per 100,000 population); however, the number of deaths by suicide recorded for this age group is the lowest (76 deaths). High rates of suicide were also recorded in males aged 50–54 and 80–84 (26.9 and 31.2 respectively). Males aged between 40–54 accounted for one quarter (25%) of deaths by suicide by males. The highest suicide rate for females was in those aged 50–54 (9.5 deaths per 100,000 population) accounting for the highest proportion of deaths by suicide for females (10.2%).

Suicide deaths by age and sex, Australia, 2021.

The bar chart shows the age-specific rates of suicide for males and females by age groups (five year age bands from 15–19, 20–24, etc to 80–84 and 85 and over). Users can choose to view numbers of deaths by suicide for males and females in these age groups. Data can also be viewed by year from 1907.

For approximately the first half of the period 1907 to 2021, age-specific suicide rates in males generally increased with age; however, by the start of the 1990s this pattern had changed substantially with suicide rates highest in younger males aged 20–39 and males aged 80 and over. Since 2008, the highest suicide rates have been observed in middle-aged males (aged 40–49) and older males aged 85 and over; however, it should be noted that rates of death by suicide in males aged 85 and over have historically been based on relatively small numbers compared to other age groups and as such, the rates can be quite volatile over time and should be interpreted with caution.

Throughout 1907 to 2021, the lowest suicide rates in males were observed in those aged 15–19.

- From 1907 to 1970, suicide rates in males aged 15–19 were less than 10 deaths per 100,000 population. Rates then increased throughout the 1970s and 1980s peaking at 21.0 in 1988, while still remaining the lowest of the reported age groups.
- In 2021, the suicide rate for males aged 15–19 was 13.1 deaths per 100,000 population.

Males aged 20–24 had the second-lowest age-specific suicide rates of all males for most of the 20th Century; however, this changed from the late 1960s.

- From 1907 to 1966, suicide rates for males aged 20–24 were around 11 deaths per 100,000 population with peaks of 16.8 in 1914, 17.0 in 1958, and 19.1 in 1963 and a low of 1.9 in 1944.
From the late 1960s to the late 1990s, suicide rates in this age group increased steadily to more than 26 deaths per 100,000 population, reaching a high of 43.1 in 1997.

Rates fell steadily to 16.3 deaths per 100,000 population in 2009 but since have risen above 20, to 21.5 in 2021.

A similar pattern was observed for those aged 25-29.

The pattern of age-specific suicide rates for middle-aged males (aged 40-59) was different to that of younger age groups, with the highest rates being observed in the first part of the 20th Century and then falling to lower levels.

- The highest age-specific suicide rate for middle-aged males was 64.9 deaths per 100,000 population in 1913 for males aged 50-54. Peaks of more than 56 were also seen in 1930 (56.6). Age-specific rates then fell to a low of 14.5 in 1944. Similar patterns were seen for 40-44, 45-49 and 55-59 age groups with the second highest age-specific rate of 63.9 deaths per 100,000 population for males aged 55-59 in 1931 and the lowest age-specific rate of 10.5 for males aged 40-44 in 1944.
- Rates tended to increase throughout the 1950s and 1960s peaking again at 42.0 deaths per 100,000 population in 1962 for males aged 55-59, before falling to 19.1 in 1983. The greatest decline during this time period was seen for males aged 55-59 falling from 41.6 deaths per 100,000 population in 1968 to 18.4 in 1977.
- Since then, rates for these age groups have fluctuated to a high of 34.4 deaths per 100,000 population in 1987 for males aged 55-59 and a recent high of 33.8 in 2017 for males aged 45-49.

A similar pattern was seen in males aged 60 and older. It should be noted that the number of deaths by suicide recorded for older males historically has been low, particularly for males aged 75 and older. This causes fluctuation in the age-specific rates. Therefore, caution should be used when interpreting trends for these age groups over time.

- The age-specific suicide rate for males aged 60 and older was about 40 deaths per 100,000 population from 1907 to 1967.
- From 1968, suicide rates for males aged 60 and older generally fell. For example, suicide rates for males aged 65-69 fell to an all-time low of 12.6 per 100,000 population in 2005. In 2021 the rate of suicide for males aged 65-69 was 18.9.

Age-specific suicide rates for females showed comparatively little variation over time - except for a peak in multiple age groups during the 1960s.

- For the first half of the 20th Century, age-specific rates in females aged 40-59 was about 9 deaths per 100,000 population, with peaks of 21.5 in 1915 and 21.2 in 1953, in the 55-59 age group. The highest rate recorded for females was 29.2 deaths per 100,000 population in 1963 for the 50-54 age group and remained around 20 until peaking a second time in 1967 at 27.1 for the 65-69 age group. Rates then fell to a low of 4.1 deaths per 100,000 population in 2004 and 2005 for females aged 55-59. Age-specific suicide rates have increased in this age group to 9.5 deaths per 100,000 population in 2019 and fell to 5.9 in 2020 and rose again to 7.5 in 2021.
- Similar patterns were seen for females aged 20-39 and 60 and older, albeit with lower suicide rates.
- A different pattern has been observed in females aged 15-19. Suicide rates fluctuated from around 2 to 6 deaths per 100,000 population from 1907 to the late 1930s. The fluctuations in rates have been mainly due to small numbers of deaths by suicide in this age group. Rates then declined to around 1 to 2 deaths per 100,000 population during the 1940s and 1950s. Rates then increased in the 1960s to the late 1990s, fluctuating between 2 and 6 deaths per 100,000 population. Since then, suicide rates have increased to between 3 and 8 deaths per 100,000 population with the highest rate recorded in this age group in 2012 (8.3 deaths per 100,000 population). In 2021, the rate was 7.1 for females aged 15-19.

How have methods of suicide changed over time?

Understanding the methods used for suicide can play an important role in suicide prevention. These data are provided to inform discussion around restriction of access to means as a policy intervention for the prevention of suicide.

Please consider the Mindframe guidelines - external site opens in new window if reporting on these statistics.

The pattern of methods used for suicide has changed greatly, sometimes rapidly, over the last century as new methods have become available or as restrictions to the availability of some methods have been introduced. The methods of suicide used by males and females differed over the period 1907 to 2021; however, as males account for the majority of deaths by suicide the methods used by males have a greater influence on the overall pattern than the methods used by females.

The classification system used to code causes of deaths data, ICD-10, uses the term ‘mechanism’ to refer to the external cause of death. Throughout Suicide & self-harm monitoring ‘mechanism’ has been used in data visualisations, while the term ‘method’ has been used in the accompanying text.

Suicide deaths by sex and mechanism, Australia, 1907 to 2021.

The line graph shows age-standardised suicide rates by mechanism for poisons, gas, firearms, hanging and other mechanisms from 1907 to 2021. Users can also choose to view age-standardised rates and numbers of deaths by suicide, by sex and mechanism (including all mechanisms) from 1907 to 2021 and median age at death by sex and mechanism from 1964 to 2021. The data can be viewed for any period between the years for which data are available.
Hanging (ICD-10 X70) has become the most common method of suicide in Australia and use of this method increased substantially over the last 25 years. Age-standardised rates of suicide by hanging remain much higher for males than females, but have increased for both sexes.

- Rates of suicide by hanging were relatively steady from 1930 to the late 1980s, with rates around 3 deaths per 100,000 population for males and lower for females. Prior to 1930, rates of suicide by hanging were volatile.
- From the late 1980s, rates of hanging increased as other methods of suicide (firearms and poisoning by gas) declined.
- Hanging became the most common method of suicide for males in 1989 and for females in 1997. Age-standardised suicide rates by hanging in males have more than doubled since then—from 5.7 per 100,000 population in 1989 to 12.6 in 2019, then falling to 11.8 in 2021. In 2021, hanging accounted for almost two-thirds (63%) of male deaths by suicide.
- Similarly, the rate of suicide by hanging increased more than 1.7 times in females from 1.9 deaths per 100,000 population in 1997 to 3.3 in 2021. In 2021, hanging caused half (52%) of all deaths by suicide in females, having increased steadily from 30% of deaths by suicide in 1997.

Use of firearms (ICD-10 X72–X75) was the most common method of suicide for males from 1907 to the late-1980s.

- In males, the rate of suicide by use of firearms was more than 5 deaths per 100,000 population per year for most of 1907 to 1993 (with a peak of 10.2 deaths per 100,000 population in 1914 and a fall below 5 deaths per 100,000 population in 1941 to 1946).
- In contrast, female rates of suicide by this method were low (less than 0.6 deaths per 100,000 population).
- Rates of suicide by use of firearms declined steeply for both males and females from 1987 and continued to decline from 1996, coinciding with the introduction of gun control restrictions and reforms.

In the 1920s, poisoning by gas (ICD-10 X67), largely due to carbon monoxide poisoning, became a new method of suicide in Australia with the introduction of the domestic gas supply and the motor vehicle to Australia.

- Rates of poisoning by gas peaked in 1963 in females (2.1 deaths per 100,000 population) and were also high for males (4.8). Rates then declined throughout the 1970s - this has been attributed to the replacement of toxic ‘town gas’ by less toxic gases in most of Australia at this time (AIHW: Harrison & Henley 2014).
- Rates of poisoning by gas subsequently increased again in the 1980s and 1990s, peaking for males (5.8 deaths per 100,000 population) and for a second time in females at a much lower level (1.2 deaths per 100,000 population) in 1997 as a result of the increasing use of motor vehicle exhaust gas (AIHW: Harrison & Henley 2014).
- A decline in poisoning by gas after 1997 was likely due to the introduction of emission controls that greatly reduced the amount of carbon monoxide permitted in the exhaust gas of new motor vehicles (AIHW: Harrison & Henley 2014).

Exposure to poisonous substances excluding gas (ICD-10 X60–X66, X68–X69) was the most common method of suicide for females from 1907 until 1997.

- For most of the first half of the 20th Century, rates of poisoning by substances (excluding gas) were approximately 2 deaths per 100,000 population in females; however, during the 1960s rates increased to 4 times that - peaking at 8.4 in 1967 - before returning to previous levels in the 1980s.
A similar peak in suicide rates by this method was seen in males, with rates more than doubling in the 1960s to a peak of 8.2 deaths per 100,000 population in 1963 before falling again in the 1970s and 1980s.

These peaks in suicide rates due to poisonous substances (excluding gas) during the 1960s have been attributed mainly to the unrestricted availability of barbiturate sedatives (AIHW: Harrison & Henley 2014). These trends were not associated with compensatory falls in the use of other methods of suicide during this time. In July 1967, in response to concerns over misuse of these drugs, the supply of barbiturates was limited and deaths by suicide from poisoning (excluding gas) in both males and females declined soon after (AIHW: Harrison & Henley 2014).

In 2021, poisoning by substances (excluding gas) was the second most common means of suicide among females with a rate of 1.6 deaths per 100,000 population - accounting for almost a third of female deaths by suicide each year for the last decade.

Age-standardised rates for suicides by other methods (ICD-10 X71, X76-X84, Y87.0) are only available from 1964.

Rates for these methods were relatively stable over the period 1964 to 2021 for both males and females.

It is not possible to report on these different methods individually, as the numbers are too small to report for privacy or data reliability reasons.

References


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Birth cohort analysis of deaths by suicide

Analysing deaths by suicide according to the period in which people were born can provide additional insights to that obtained by examining suicide rates by period of death (see Deaths by suicide over time).

A 'birth cohort' is a group of people born within the same defined period. People in a birth cohort age together over time and experience the same events and changes in technology or cultural norms at the same age.

This birth cohort analysis relates deaths by suicide to period of birth (birth cohort) and age at death. It examines how suicide rates change within birth cohorts as they age and how they vary between birth cohorts when compared at the same age.

Data sources and methods

This analysis is based on data from the AIHW National Mortality Database, which holds records for deaths in Australia from 1964.

Suicide rates by age at death (5-year age groups; ages 10-14 years and older) were calculated for each birth cohort. Birth cohorts can be defined in terms of any range of birth dates for which data are available; the cohorts presented here are those born in each 5-year period from 1954-58 through to 2004-08. The earliest birth cohort, those born in 1954-58, can be followed for over 60 years. For more information on data sources and methods, see Suicide in Australia: Trends and analysis 1964 to 2018.

How do suicide rates change among birth cohorts?

The interactive data visualisation shows how suicide rates have changed as people in each birth cohort have aged—with each line representing a birth cohort. By comparing the earlier birth cohorts with those born more recently, see how the age groups most at risk change.


The line graph shows age-specific rates of suicide for 5-year birth cohorts from 1954-1958 to 2004-2008 by age at death from 15-19 to 60-64 for males by all mechanisms. Users can also choose to view suicide rates by sex, mechanism and age at death. The highest suicide rate was in males born 1969-1973 who died aged 25-29, followed by males in this cohort who died aged 20-24.
In the earlier male birth cohorts (born 1954–58 to 1974–78) peaks in suicide rates for each subsequent birth cohort tended to be higher and occur at successively younger ages of death—with peaks tending to coincide with deaths occurring in the 1990s (period of death). For more information, see Suicide deaths over time. Suicide rates in these cohorts then tended to decline as they aged.

For example, peak suicide rates in males born in:
- 1954–58 occurred at age 40–44 (29.4 deaths per 100,000 cohort members)
- 1959–63 occurred at age 35–39 (31.0)
- 1964–68 occurred at age 30–34 (34.0)
- 1969–73 occurred at age 25–29 (36.9)
- 1974–78 occurred at age 20–24 (33.4).

For the majority of the male cohorts born in the later years, from 1974–78 onwards, suicide rates were still rising at the end of the available data; the oldest people in these cohorts were aged 42–46 years in 2018.

Suicide rates in female cohorts were much lower than those of male cohorts and for the earlier born cohorts tended to increase as they aged.

- For example, the highest suicide rates in female cohorts were in those born in 1964–68 and 1969–73—the same cohorts that had the highest rates in males. However, peaks in suicide rates for these female cohorts tended to occur at older ages (9.7 and 9.5 at age 50–54 and 45–49, respectively) than in male cohorts (which peaked in early adulthood and then declined).

How do suicide rates vary between birth cohorts when compared at the same age?

The interactive data visualisation shows how suicide rates have changed for people of the same age, but born at different times—each line representing the same age group. By following the suicide rate of a specific age group, see how suicide rates have changed for people born between 1954 and 2008.


The line graph shows age-specific suicide rates for ages of death from 10–14 to 60–64, by 5-year birth cohorts from 1954–1958 to 2004–2008 by all mechanisms for females. Users can also choose to view suicide rates by sex, mechanism and for selected age-ranges at death. The rates of suicide among young females aged 15–19 at death showed the greatest change between the earliest and latest born cohorts for which data are available, almost doubling from 3.6 per 100,000 population in the 1954–1958 cohort to 6.4 in the 1999–2003 cohort, with some fluctuation in between these cohorts.
In females, the suicide rate at age 15–19 for those born most recently (1999–2003) was 1.8 times higher than the earliest cohort born in 1954–58. This pattern was not observed in males of the same age.

- For females born in 1999–2003, the suicide rate reached 6.4 deaths per 100,000 cohort members at age 15–19—considerably higher than females born in 1954–58 (3.6 deaths per 100,000 cohort members).

Suicide rates at age 45–49 have increased with each successive birth cohort in both males (from 24.1 in those born in 1954–58 to 29.5 deaths per 100,000 cohort members in those born in 1969–73) and females (from 6.7 to 9.5 deaths per 100,000 cohort members in the same cohorts).

Suicide rates across male cohorts compared at the same age show no clear pattern. Rates at younger ages of death (15–19 and 20–24) tended to be higher for those born prior to 1979–83 than in those born in more recent cohorts (1984–1988 onwards).

- For males born in 1984–88 the suicide rate at age 20–24 was almost half that of the cohort born in 1969–73 (18.0 deaths per 100,000 cohort members compared with 35.1).
- Rates of suicide at age 15–19 for males born in 1974–78 were 1.8 times higher than those with the lowest rate born in 1954–58 (18.0 deaths per 100,000 cohort members and 10.0, respectively). Rates at age 15–19 were 12.3 deaths per 100,000 cohort members in the most recent male birth cohort for which data are available (1999–2003).

**Trends in methods of suicide by birth cohort and age at death**

Understanding the methods used for suicide can play an important role in suicide prevention. These data are provided to inform discussion around restriction of access to means as a policy intervention for the prevention of suicide.

Please consider your need to read the following information. If this material raises concerns for you or if you need immediate assistance, please contact a [crisis support service](https://mindframe.org.au/suicide/communicating-about-suicide/mindframe-guidelines), available free of charge, 24 hours a day, 7 days a week.


The classification system used to code causes of deaths data, ICD-10, uses the term ‘mechanism’ to refer to the external cause of death. Throughout Suicide & self-harm monitoring ‘mechanism’ has been used in data visualisations, while the term ‘method’ has been used in the accompanying text.

The interactive data visualisations show which methods underlie changes in suicide rates as people in each birth cohort have aged (top visualisation)—and underlie changes in suicide rates for people of the same age, but born at different times (second visualisation).

Rates of suicide by hanging (ICD-10 X70):
- tended to increase for both male and female birth cohorts as the cohort aged (top visualisation).
- tended to increase in most age groups with each successive birth cohort in females; the pattern in males was less consistent (second visualisation). For example:
  - rates of suicide by hanging at ages 15-19 increased for each successive female birth cohort from a low of 0.1 per 100,000 cohort members in those born in the earliest cohort (1954-58) to a high of 4.9 in those born in the most recent cohort (1999-2003).
  - in the 2 most recently born female cohorts for which there are data available at ages 15-19 (born in 1994-98 and 1999-2003), rates of suicide by hanging were as high or higher than, rates at almost any other age in all other female cohorts.
  - for males, rates of suicide by hanging at ages 15-19 do not show the same pattern as females; rates in male cohorts increased up until those born in 1979-1983 and have since remained at about the same level (9.5 deaths per 100,000 cohort members for the latest birth cohort, born 1999-2003).

Rates of suicide by use of firearms (ICD-10 X72-X75) for both males and females peaked at younger ages (15-19 or 20-24) in all birth cohorts and then declined as cohorts aged (top visualisation). Suicide rates by this method tended to be lower for each successive birth cohort at all ages for which there are data available.

- Each more recently born male cohort (born 1969-73 to 1989-93) had successively lower suicide rates by use of firearms at age 20-24 (7.3, 3.6, 1.5, 1.0 and 0.8 deaths per 100,000 cohort members).
- A similar pattern was seen for female cohorts; however, rates were low.

Rates of suicide due to exposure to poisons excluding gas (ICD-10 X60-X66, X68-X69) in female cohorts were similar to that of male cohorts throughout the period 1964 to 2018 (0-3.6 deaths per 100,000 cohort members compared with 0-4.3, respectively)—unlike that of other suicide methods (top visualisation). Rates of suicide by this method were still rising for most male and female cohorts at the end of the available data.

Reference

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Deaths by suicide, by states and territories

Patterns of deaths by suicide between states and territories can reveal insights that may be masked by results for the whole of Australia. Variations in the rates of deaths by suicide across states and territories may help to highlight different risk factors and assist in better targeting of suicide prevention activities. For example, differences in the ratio of urban to regional and remote areas may explain some of the differences across states and territories given that the rates of suicide tend to be higher in regional and remote areas, see Suicide by remoteness areas.

Information based on the deceased’s usual state or territory of residence is available for deaths registered after 1979. Deaths by suicide may be presented by either year of death or by year of registration. Reporting by year of death can provide more reliable information on trends in occurrence than reporting by year of registration; however, the latest data available underestimates the occurrence of recent deaths due to a lag in registration, for more information, see Technical notes. Here, statistics based on both year of registration of death and year of occurrence of death are presented.

Suicide deaths by states and territories, Australia, 1979 to 2021.

The line graph shows age-standardised suicide rates by year of registration for all states and territories and Australia from 1979 to 2020. Users can choose to view age-standardised suicide rates, numbers of deaths by suicide, year-on-year change in age-standardised suicide rate and year-on-year change in numbers of deaths by suicide, by year of registration and year of death.

Suicide deaths by states and territories, Australia, 1979 to 2021

Death by year of registration
Age-standardised rate (per 100,000)

Select state/territory:  
Select year range: 1979 to 2021
Select measure:  
Select counting period:  

See notes ➤
How do suicide rates vary across states and territories?

From 1979 to 2021, age-standardised suicide rates based on death registrations:

- tended to be lower for New South Wales and Victoria than the overall Australian suicide rate while rates for all other jurisdictions tended to be higher
- tended to be highest in the Northern Territory (ranging from 14.2 in 2013 to 29.8 deaths per 100,000 population in 2007); however, it was one of the jurisdictions with the lowest number of deaths by suicide (from a high of 56 in 2014 to a low of 7 in 1982).

In 2021:

- the age-standardised suicide rate ranged from 10.1 per 100,000 population in Victoria to 18.4 per 100,000 in the Northern Territory.

Age-standardised suicide rates allow for comparisons between states and territories by adjusting for differences in age structures and population size. Rates fluctuate over time—particularly in the smaller jurisdictions—due to the small number of deaths by suicide that are registered each year. Caution is advised when comparing state and territory data. Differences in coronial processes, data processing or coding practices should also be taken into consideration when comparing data across jurisdictions and over time.

In 1979, the highest number of deaths by suicide was in:

- New South Wales (539 deaths), followed by Victoria (462), Queensland (296), South Australia (178) and Western Australia (116).

By 2021, the highest number of deaths by suicide was in:

- New South Wales (880), followed by Queensland (783), Victoria (675), Western Australia (389) and South Australia (226).

However, it should be noted that New South Wales and Victoria have the largest populations in Australia and the populations of both Queensland and Western Australia increased considerably from 1979 to 2021.

What is the effect of reporting deaths by suicide by year of occurrence?

The data for age-standardised rates and number of suicide deaths are broadly similar when analysed by year of death or year of registration. Minor differences arise due to the elapsed time prior to registration with recent years showing some differences due to incomplete coronial processes and registrations.

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Suicide & self-harm monitoring

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Australian prevalence estimates of suicidal behaviours

If at any point you feel worried about harming yourself while viewing the information on this website—or if you think someone else may be in danger—please stop reading and seek help.

Suicidal behaviours are defined as thinking about or planning taking one’s own life (suicidal ideation) or attempting suicide.

Understanding the prevalence of suicidal behaviours in Australia is important as this may help to reduce stigma, increase help-seeking behaviour and improve suicide prevention activities.

Many people experience thoughts of suicide:

- In 2020-21 1 in 6 (16.7% or around 3.3 million) of Australians aged 16-85 had serious thoughts about taking their own life at some point in their lives (ABS 2022).

Yet, while thinking about suicide is common, not everyone goes on to develop a suicide plan or take their own lives. Despite this, it is important to take seriously any person seeking assistance because of suicidal thoughts.

People who experience suicidal ideation and make suicide plans are at increased risk of suicide attempts and those who experience all forms of suicidal thoughts and behaviours are at greater risk of dying by suicide (see Psychosocial risk factors and suicide).

The National Suicide and Self-harm Monitoring Project has funded the collection of data on suicidal behaviours through the National Ambulance Surveillance System. This system uses coded ambulance clinical records from jurisdictional ambulance services across Australia to capture information related to ambulance attendances for mental health and self-harm behaviours (see Ambulance attendances).

However, not all people with suicidal behaviours will make contact with these services. Instead, an indication of the prevalence of these behaviours in the community may be derived from surveys of representative samples of the population.

A program of surveys, the National Survey of Mental Health and Wellbeing, began in Australia in the late 1990s. The most recent of these surveys was conducted in 2007. In 2020 the National Study of Mental Health and Wellbeing was introduced as a component of the wider Intergenerational Health and Mental Health Study. The National Study of Mental Health and Wellbeing is being undertaken in two cohorts in 2020-21 and 2021-22 and will measure the 12-month and lifetime prevalence of mental illnesses in Australia for the first time since the 2007 National Survey of Mental Health and Wellbeing.

Results for the 2020-21 cohort were released by the Australian Bureau of Statistics on 22 July 2022 (ABS 2022). The 95% confidence intervals for estimated numbers and proportions, are included in brackets against the results reported below. The results are not directly comparable with those from the 2007 National Survey of Mental Health and Wellbeing as different questions were used.

Results from the 2020-21 cohort of the National Study of Mental Health and Wellbeing (ABS 2022) indicate that:

- over 1.5 million (1.3–1.7 million) or 7.7% (6.7–8.7%) of Australians aged 16-85 had made a suicide plan and almost 950,000 (802,500-1.1 million) or 4.8% (4.1-5.5%) had attempted suicide during their lifetime
- females were more likely to be suicidal than males, with a higher prevalence of suicidal thoughts or behaviours in their lifetime (18.7% [16.5-20.9%], compared with 14.5% [12.4-16.6%], respectively) . These findings are in contrast to the data on deaths by suicide, which show that males are more likely than females to die by suicide; visit Deaths by suicide over time
- young people and adults aged 16-34 reported the highest prevalence of suicidal thoughts or behaviours in the 12 months before the administration of the study (5.2% [3.8-6.6%] of people aged 16-34)
- in their lifetime, 38.0% (36.5–39.5%) of Australians aged 16-85 were close to someone who took or attempted to take their own life, while 5.9% (4.9-6.9%) were close to someone who took or attempted to take their own life in the 12 months prior to the study.

For full results visit National Study of Mental Health and Wellbeing - external site opens in new window (https://www.abs.gov.au/statistics/health/mental-health/national-study-mental-health-and-wellbeing/latest-release). Please note that some of the 12-month prevalence estimates for suicidal thoughts and behaviours have high relative standard error (RSE) and margin of error (MOE), and thus wide confidence intervals and greater uncertainty. These results should be interpreted with caution. Refer to the ABS technical notes on interpretation of results with high RSEs & MOEs (visit National Study of Mental Health and Wellbeing methodology - external site opens in new window (https://www.abs.gov.au/methodologies/national-study-mental-health-and-wellbeing-methodology/2020-21)).
The 2021–22 cohort of the National Study of Mental Health and Wellbeing commenced in December 2021 and will conclude in late 2022.

Reference


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Patterns of health service use in the last year of life among those who died by suicide

A significant proportion of people who die by suicide have contact with the health system in their last year of life. These contact points provide a potential touch point for suicide prevention activities. As Clapperton et al. (2021) argue, many prevention activities focus on people who access hospitals. However, Clapperton et al. (2021) also show significant proportions of people who die by suicide (particularly men) do not attend hospitals in their last year of life. It is important to focus not just on people who use services but also on people who do not access services.

Through this project we have used the National Integrated Health Services Information Analysis Asset (NIHSI AA) version 0.5 to look at patterns of health service use in the last year of life for people who have died by suicide. The main value add of this project, compared to earlier studies, comes from the fact that the NIHSI AA includes both Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS) data. This is an important distinction as we show that people who die by suicide are considerably more likely to access MBS and PBS services in their last year of life than hospital services.

While this project provides the most comprehensive analysis of health service use in the last year of life for people who die by suicide it does have some important limitations. First the NIHSI AA does not include all health services. For example, it does not include community or residential mental health services. Second the emergency department (ED) data in the NIHSI AA does not identify intentional self-harm well as intentional self-harm is not identified well in ED data in most States and Territories (AIHW 2022a).

An additional limitation of this analysis relates to the fact that not all mental services under the MBS are billed as specific mental health items — some are billed under general GP items (AIHW 2022b).

The project has been established to measure and compare the patterns of health service use of Australians in their last year of life. Specifically, in this analysis we aim to:

- measure the patterns of health service use in the last year of life
- identify key factors related to variation in the patterns of health service use in the last year of life such as age and sex.

Using linked datasets including the National Deaths Index, National Hospital Morbidity Database, National Non-admitted Patient Emergency Department Care Database, MBS and PBS, the NIHSI AA presents descriptive statistics to answer the research questions. While the MBS and PBS databases include national data, hospital data pertains to only New South Wales, Victoria (excluding Albury-Wodonga), South Australia and Tasmania public hospitals within the NIHSI AA v0.5. Admitted patient information also contains information from private hospitals in Victoria. To ensure accurate comparisons with hospitals data, only deaths registered in these jurisdictions are included in the analysis.

The analysis population was those who had died between 1 July 2010 and 31 December 2017 in the linked National Deaths Index. Only people whose age at death was between 15 to 64 years were included in the analysis. This was due to people in this age range making up the majority of those who die from suicide and to allow for better comparisons with deaths from other causes, which mostly occur in people older than 65 (AIHW 2022c). In the analysis population, people aged 15-64 years represented 82% of suicides (10,013 suicide deaths).

For further information on the dataset and methods used, visit Technical notes - Data sources.

People who died by suicide accessed fewer health services in their last year of life than those who died from other causes

Overall, 49% of 15-64 year olds who died by suicide did not have any contact with the hospital (emergency department (ED) presentation or hospital separation), compared to 24% who died by other causes. This is similar to results from Clapperton et al. (2021), who found that 50% of people who died by suicide in Victoria did not have any ED presentations or hospital separations in their last year of life, using data from the Victorian Suicide Register and including all age groups.

In addition to looking at overall access to hospitals it is also worth exploring access to individual services and how access to these services vary by age and sex.
• Females (59%) who died by suicide were considerably more likely than males to attend hospital for any reason in their last year of life (48%). There is also variation by age and sex with females aged 34-44 being the most likely to attend hospital (61%) and males aged 55-64 being the least likely to attend (45%).

• Females (53%) were more likely than males to attend an emergency department for any reason in their last year of life than males (44%). The highest rate was for females aged 25-34 (56%) while the lowest rate is for males aged 55-64 (39%).

• 9% of females and 6% of males who died by suicide had a mental health related ED presentation in their last year of life.

• While it is not possible to identify intentional self-harm ED presentations in the NIHSI AA it is possible to identify intentional self-harm ED presentations in Victoria. Clapperton et al. (2021) found that the vast majority of both males (92%) and females (84%) who died by suicide did not attend hospital for intentional self-harm in their last year of life as either an admitted patient or in an emergency department.

• A higher proportion of females (47%) who died by suicide were an admitted patient in hospital in their last year of life than males (32%).

• Only 13% of women and 6% of men who died by suicide were an admitted patient in hospital for intentional self-harm in their last year of life.

• Females (30%) who died by suicide were more likely than males (19%) to have had a mental health hospitalisation (this excludes ED presentations) in their last year of life.

• Both females (90% v 59%) and males (79% v 48%) who died by suicide were considerably more likely to have used MBS services than hospital services in their last year of life.

• Females who died by suicide (57%) were considerably more likely to have used MBS mental health services than males (37%) in their last year of life.

• Females (71%) who died by suicide were also more likely than males (50%) to have had a PBS mental health prescription in their last year of life.

The interactive data visualisation shows the proportion of health services used in the last year of life for people who died by suicide and for people who died by other causes. The service type can also be selected. It is displayed by age group from 15-64 and sex for deaths between 1 July 2010 and 31 December 2017.

Of those who died from suicide from 1 July 2010 and 31 December 2017:

• 11% did not access any of the health services analysed in their last year of life.

• Over 1 in 10 males (13%) who died by suicide did not access a service in their last year of life. Males were less likely to have accessed any services than females in every age group.

• Overall, younger age groups and males had higher proportions of not accessing a service in their last year of life compared to older age groups and females.

• Males aged 15-24 who died by suicide had the highest proportion of not accessing services in their last year of life (19%), while females aged 55-64 years who died of other causes had the lowest proportion (2.6%).

• Around 10% of females aged 15-24 who died by suicide did not use any of the health services analysed in their last year of life.
The data visualisation shows the amount of health services used in the last year of life for people who died by suicide and for people who died by other causes. It is displayed by age groups between 15-64 and sex for deaths registered between 1 July 2010 and 31 December 2017. For males and females of all age groups a higher percentage of services was used when the cause of death was not suicide.

People who died by suicide had more ED presentations in their last year of life than those who died by other causes

Of those who did access a health service in their last year of life, MBS and PBS services represented the highest proportion of services among those who died by either suicide or other causes. For those who died by suicide, the next most prevalent health service after MBS and PBS was ED presentations (3.8%) then hospital separations (2.4%).

- Out of the four selected service groups, the proportion of ED presentations and hospital separations decreased in those who died by suicide with increasing age, for both males and females.
- MBS services also decreased with increasing age among those who died by suicide. For instance, the proportion of MBS services out of the four selected service groups was 64% in females aged 15-24 and 47% in females aged 55-64.

The interactive data visualisation shows the type of health services used in the last year of life. The user can display the data by female, male or persons. Data is categorised by age groups from 15-64, causes of death by suicide and other causes of death and service type used between 1 July 2010 and 31 December 2017.
Young people who died by suicide had higher health service use than those who died by other causes

Suicide is the leading cause of death among people aged 15-44, while chronic diseases feature more prominently among people aged 45 and over. In general people who die by suicide are younger than people who die by other causes (AIHW 2022c). This is reflected in these data for health service use. For example, among those who died by suicide and had any hospital contact in last year of life (including ED), 59% of those hospital contacts were in the 15-44 age group, compared to 17% of the same age who died of other causes. Most people who died by other causes and had a hospital contact were aged 45-64 (83%). Any mental health, suicidal ideation or intentional self-harm hospitalisations or ED mental health presentations also follow this pattern.

- Of those who presented to ED and died from suicide, one quarter (25%) were people aged 35-44, whereas only 11% of those who presented to ED and died from other causes were in this age group.
- Out of those who died by suicide, the average number of services per person for any mental health MBS services was higher than for those who died by other causes, across all age groups.

The interactive data visualisation shows health services used in last year of life for those that died by suicide or other causes, by age group for deaths between 1 July 2010 and 31 December 2017. The user can display the data by measure (proportion of people, proportion of services, average number of services per person), sex (males, females, persons) and service type used.
A higher proportion of health services occurred in the month prior to death

Among those who died by suicide, the highest proportion of hospital contacts (ED or hospital separation) occurred 1 month prior to death (18%), out of a 12 month period. This might indicate increased risk following the use of some services. However, the average number of services is similar across all months meaning that those who did receive a service one month prior to death did, on average, not attend more often than in previous months. Note that in this analysis, people who died in hospital or during their ED presentation were excluded to capture their service use prior to death, except for those who had an intentional self-harm diagnosis during their episode of care (see Technical notes - Data sources for an explanation on analytical method used).

Per person, of those who died by suicide:

- The average number of any MBS mental health or mental health treatment plan service is higher than those who died from other causes between 12 months and 1 month prior to death.
- The average number of any MBS service decreases sharply between 3 months prior to death and 1 month prior to death, while remaining somewhat steady in those who died from other causes.

The interactive data visualisation shows service use in the 12 months leading up to death. Users can display data by measure (proportion of people, proportion of services, average number of services per person), sex (males, females, persons) and service type. Most health services occur in the month prior to death.
Among those who died by suicide:

- The cumulative total proportion of ED mental health presentations in the lead up to death is lower than those who died from other causes between 12 to 2 months prior to death, indicating lower service usage until 1 month prior to death.
- The cumulative total proportion of any MBS service is lower than those who died by other causes between 12 to 1 month/s prior to death.

The interactive data visualisation shows the cumulative service use by sex and cause of death in the 12 months leading up to death. Users can display data by sex and service type.
The AIHW will undertake further analysis on these data including multivariate modelling. While these data are informative more insights can be gained by looking at how the use of these various health services compares to the population in general. For example, while the majority of people who die by suicide did not have a mental health hospitalisation in their last year of life they are considerably more likely to have done so than the population in general.

References


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Suicide & self-harm monitoring

Suicide registers

In Australia, the coroners court in each state and territory is responsible for investigating suspected deaths by suicide. Several jurisdictions have established their respective suicide surveillance systems to collect and report timely data and information on suspected and confirmed deaths by suicide. Suicide registers are currently operational in New South Wales, Victoria, Queensland, South Australia, Tasmania and the Australian Capital Territory. Real-time data from suicide registers are valuable for informing responses, research, and policy in suicide prevention locally, and across national and international levels.

Several jurisdictions have published reports on their suicide register data, including:

- New South Wales (monthly reports up to April 2023)
- Victoria (monthly reports up to May 2023)
- Queensland (annual reports up to 2021)

These reports are discussed further in the next section. It is important to note that suicide is not influenced or caused by one factor—but results from a complex interaction between multiple risk factors (Leske et al. 2020).

Data on suspected deaths by suicide are based on initial police reports and other information available at the time of referral to the coroner. As such, they are not directly comparable with cause of death data released by the Australian Bureau of Statistics, which are based on final coronial determinations. However, the differences are generally small. For example, in the case of the Victorian Suicide Register (VSR):

> "VSR analyses have shown that over time, there is consistently less than 5% difference between the number of suicides initially identified as suicide, and the number of deaths ultimately confirmed as suicides" (Coroners Court of Victoria 2023d).

The state and territory suicide registers also differ from each other in their processes and counting rules for identifying suspected suicide deaths. Therefore, data from one register cannot be directly compared with those from another.

For more information on suicide register data custodians with published data, visit Data sources.

To facilitate comprehensive suicide surveillance across Australia, the AIHW is working with other state and territory governments to establish suicide registers in their jurisdiction. Visit Data development activities to read more.
Suicide & self-harm monitoring

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Data from suicide registers

New South Wales

The New South Wales Suicide Monitoring System (NSW SuMS) was established in October 2020. The NSW SuMS is a collaboration between NSW Health, the Department of Communities and Justice (DCJ), the State Coroner and NSW Police. NSW Health publishes monthly reports on suspected and confirmed deaths by suicide occurring in New South Wales. Data on suspected deaths by suicide are an estimate, and numbers for the same period may differ slightly between reports as the coroners determinations into the deaths are finalised. Caution is advised against drawing any conclusions about suicide trends in NSW based on short-term changes.

The latest NSW SuMS report for April 2023 shows that (NSW Health 2023):

- A total of 965 suspected or confirmed suicide deaths was recorded for the full year in 2022. This was higher than the number of suicide deaths in 2021 (909), 2020 (899) and 2019 (946).
- 319 suspected deaths by suicide were recorded between 1 January and 30 April 2023. This is lower than the number of suspected or confirmed deaths by suicide reported over the same period in 2022 (343) and higher than the numbers reported in 2021 (317), 2020 (288) and 2019 (296).

The number (frequency) of suspected or confirmed suicide deaths per month varies considerably from month to month, as can be seen in the visualisation below when the “Frequency” view is selected. The “Cumulative Frequency” view shows the year-to-date numbers of suicide deaths for each month. From this view it appears that the increase in suicide numbers in 2022 began from around April 2022.

The interactive data visualisation shows the number of suspected and confirmed deaths by suicide in New South Wales, by month, beginning from January 2019 up to February 2023. Viewing can be changed between frequency and cumulative frequency. An average trendline has been included.
The NSW SuMS also reports on suicide deaths by gender, age group and residential location (NSW Health 2023):

- In 2022, 748 of the suspected or confirmed suicide deaths reported in NSW were among males. This is higher than the 671 suicide deaths reported in 2021, 673 in 2020 and 732 in 2019.
- For females, there were 216 suspected suicide deaths in 2022, compared with 238 in 2021, 226 in 2020 and 214 in 2019.
- The highest increase in 2022 was reported in males aged 55 to 64 with 132 deaths by suicide, compared with 97 in 2021. This was followed by males aged 35 to 44, with 142 deaths in 2022 compared with 116 in 2021.
- In 2022, the numbers of suspected and confirmed deaths by suicide reported for both males and females aged 55 to 64 (132 and 35, respectively) were higher than reported in any year between 2019 and 2021. Unlike previous years, the total number of suspected and confirmed deaths by suicide in the 55 to 64 age group (167) was the same as in the 25 to 34 and 45 to 54 age groups.
- In each year from 2019 to 2022, around half of suicide deaths in NSW occurred among residents of Greater Sydney, with the remainder comprising residents of the rest of NSW and a small number of interstate/overseas residents.

The interactive data visualisation shows the number of suspected and confirmed deaths by suicide in New South Wales, starting from 2019 up to 2022. The population group is divided by sex (males, females) and age groups, ranging from people under the age of 18 years to 85 years and over. Viewing by location of usual residence can also be selected.
Almost four-fifths (79%) of suspected and confirmed deaths by suicide were among males. This proportion is slightly higher compared with the full-year data for previous years, with males accounting for 78% of suspected and confirmed suicide deaths in 2022, 74% in 2021, 75% in 2020 and 77% in 2019.

Around half of suspected and confirmed suicide deaths occurred among residents of Greater Sydney, similar to previous years.

Consistent with previous years, the majority of suspected and confirmed suicide deaths occurred among people aged 25 to 54 (NSW Health 2023).

The interactive data visualisation shows the number of suspected deaths by suicide in New South Wales, from month end February 2019 to month end February 2023. The population group is divided by sex (males, females) and age group, ranging from people under the age of 18 years to over 85. Viewing by location can also be selected.
Victoria

The Coroners Court of Victoria (CCOV) established the Victorian Suicide Register (VSR) in 2012 and publishes monthly data reports on suspected and confirmed deaths by suicide. VSR data are regularly reviewed, where deaths may be added or removed from the register as coronial investigations progress and finalised. VSR data may therefore change overtime.

The latest Monthly Suicide Data Report shows (CCOV 2023c):

- There was a total of 760 suspected suicide deaths in 2022. This was higher than the number of suicide deaths in 2021 (694), 2020 (685) and 2019 (701).
- Between January and May 2023, 318 suspected deaths by suicide were reported in Victoria. This is higher than the same period in 2022 (287), 2021 (287), 2020 (297) and 2019 (301).

The interactive data visualisation shows the number of suspected deaths by suicide in Victoria, by month, starting from January 2016 to January 2023. Viewing can be changed between frequency and cumulative frequency. An average trendline has been included.
As illustrated above, the monthly frequency data show considerable variation which, according to the CCOV, usually results from random factors rather than underlying systemic issues or emerging clusters (CCOV 2023d). The data therefore should be interpreted cautiously, with great care taken in drawing conclusions about any apparent short-term increase or decrease that is observed.

The “Cumulative Frequency” view in the visualisation above shows that the increase in 2022 began in the second half of the year and ‘is in contrast to the preceding four years, in which Victoria had seen a plateau in suicide numbers’ (CCOV 2023a). The number of suspected and confirmed suicides between January and July 2022 was consistent with previous years, with a monthly average of 58 deaths. However, between August and December 2022, the average monthly frequency increased to 70 deaths, which ‘might signal an emerging trend’ (CCOV 2023a). More recent data show that the average monthly frequency of suspected suicides for the first 5 months of 2023 has declined to around 64 deaths (CCOV 2023e).

The highest increase in 2022 was seen in the 65 years and older age group, from 118 suspected and confirmed suicide deaths in 2021 to 156 in 2022. This was followed by the 45 to 54 age group, from 128 deaths in 2021 to 155 deaths in 2022 (CCOV 2023a, 2023d).

The interactive data visualisation shows the number of suspected and confirmed deaths by suicide in Victoria, starting from 2018. The population group is divided by sex (males, females) and age groups, ranging from people under the age of 18 to over 65. Viewing by incident location can also be selected.
The year-to-date data to May 2023 for Victoria (see visualisation below) show that between January and April 2023, there was an increase in suspected suicide deaths among young people aged under 18 years, with 17 deaths recorded to 30 April (CCOV 2023c). This is notably higher than the number of suspected or confirmed suicide deaths recorded during this period for this age group in previous years (2 in 2022, 7 in 2021, 9 in 2020 and 2 in 2019) (CCOV 2023c). The number of suspected suicides reported for young people aged under 18 years in Victoria remained unchanged at 17 in May 2023 (CCOV 2023e).

The increase in young people under 18 years between January and April 2023 was seen in both males and females (CCOV 2023c):

- For males in this age group, there were 10 suspected deaths by suicide in the first 4 months of 2023, compared with none during the same period in 2022, 3 in 2021, 7 in 2020 and 1 in 2019.
- For females in this age group, there were 7 suspected suicides between January and April 2023, compared with 2 in this period in 2022, 4 in 2021, 2 in 2020 and 1 in 2019.

CCOV is investigating the increase in suicide deaths among young people and has released a statement noting that the deaths ‘occurred in diverse circumstances across communities in both Metropolitan Melbourne and Regional Victoria, with no clear links established to date between any of the deaths’ (CCOV 2023b).

Detailed breakdowns of the year-to-date frequency of suspected and confirmed suicide deaths in Victoria by sex and age group, and incident location can be viewed on the visualisation below.

The interactive data visualisation shows the number of suspected deaths by suicide in Victoria, from month end January 2019 to month end April 2023. The population group is divided by sex (males, females) and age group, ranging from people under the age of 18 years to 65 years and over. Viewing by location can also be selected.
Consistent with the annual data for 2019 to 2022, the year-to-date data on suspected deaths by suicide in Victoria in 2023 show that (CCOV 2023e):

- Around three-quarters of suspected deaths by suicide were among males.
- The majority of suspected deaths by suicide occurred among those aged between 25 and 54 years.
- Around two-thirds of suspected suicide deaths occurred in Metropolitan Melbourne.

The CCOV has also published data on suicides of Aboriginal and Torres Strait Islander people. The number of suspected deaths by suicide in 2022 for Indigenous Australians in Victoria was 18, compared to 34 in 2021, 22 in 2020, 20 in 2019, and 14 in 2018. Of those 18 people who were suspected to have died by suicide in 2022, 13 were male. This compares to 24 in 2021, 14 in 2020, 12 in 2019 and 10 in 2018. There were 5 female suspected deaths by suicide in 2022, compared to 10 in 2021, 8 in both 2020 and 2019, and 4 in 2018 (CCOV 2023f).

Between 2018 to 2022, Aboriginal and Torres Strait Islander people made up an average of 3.1% of people who were suspected or confirmed to have died by suicide in Victoria (CCOV 2023f).

Suicide deaths among Aboriginal and Torres Strait Islander people under 35 years of age accounted for 58% of all Aboriginal and Torres Strait Islander suicide deaths. Whereas, suicide deaths among non-Indigenous people under 35 years accounted for 32% of all non-Indigenous suicide deaths (CCOV 2023f).

Queensland

The Australian Institute for Suicide Research and Prevention (AISRAP) at Griffith University manages the Queensland Suicide Register (QSR) and the interim Queensland Suicide Register (iQSR). The QSR contains data on confirmed deaths by suicide from 1990 to 2018 and the iQSR contains data on suspected deaths by suicide from 2019 onwards (Leske et al. 2022). Due to the time needed to complete coronial investigations, it can take several years for a death to be confirmed as suicide and entered into the QSR. Until this time, data on deaths where suicide is suspected are available from the iQSR. AISRAP publishes a report on suicides in Queensland annually.

Data from the iQSR show that 813 suspected deaths by suicide of Queensland residents occurred in Queensland in 2021 (Leske et al. 2022). The figure was an increase from 2020 (778) and the highest number of suicides of Queensland residents in a calendar year (Leske et al. 2022). Previously, the highest number of suicides in a calendar year (806) had been recorded in 2017 (Leske et al. 2022).

AISRAP has estimated monthly age-standardised suspected suicide rates for residents of Queensland from 1990 to 2021, taking into account population growth for more meaningful comparisons between years. The monthly age-standardised rates of suspected deaths by suicide from January 2019 to December 2021 is illustrated in the data visualisation below.

The interactive data visualisation shows the age-standardised rate (per 100,000) of suspected deaths by suicide for Queensland residents, by month, starting from January 2019 to December 2021. Choice in sex (persons, males, females) and year (all, 2019, 2020, 2021) are all selectable features.
The estimated age-standardised suspected suicide rate for Queensland residents in 2021 (15.5 per 100,000 population) was 3.1% higher than in 2020 (15.1) (Leske et al. 2022). When looking at males and females separately, the estimated suspected suicide rate for males decreased from 2020 to 2021 (from 24.0 to 23.7 per 100,000 population), while the rate for females increased (from 6.5 in 2020 to 7.6 in 2021) (Leske et al. 2022).

Data from the iQSR for 2021 show that of the 813 Queensland residents who died by suspected suicide (Leske et al. 2022):

- 75.0% were male and 25.0% were female
- the majority of suspected deaths by suicide for both males and females occurred among those aged between 20 and 59.

Of the 813 suspected deaths by suicide that occurred among Queensland residents in 2021, 57 (7.0%) of those were among Aboriginal and Torres Strait Islander people (Leske et al. 2022).

Leske et al. (2022) have analysed age-specific suspected suicide rates in the COVID-19 period (February 2020 to December 2021) and before COVID-19 (January 2015 to January 2020) for males and females separately. The analysis found that, while there were some differences by sex and age, there was no evidence of an increase in suspected suicide rates since the onset COVID-19 pandemic and restrictions. However, examination of police reports indicated that between 29 January 2020 and 31 December 2021 the pandemic appeared to be a contributing factor in 86 of the 1,539 suspected suicides (5.6%). For more information see: COVID-19.

References


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Ambulance attendances: suicidal and self-harm behaviours

The complete extent of non-fatal suicidal and self-harming behaviours in the community is unknown in Australia. This is because, in part, not all people seek medical treatment or support for suicide attempts and self-harm injuries. Further, there are also limitations to and gaps in our current data that capture information about these behaviours. For example, data on hospitalisations due to intentional self-harm under-report the true incidence of these behaviours in the community, as only those with serious physical or mental ill-health are admitted to hospital for further treatment. Additionally, it is not possible to identify those presenting to Emergency Departments with intentional self-harm and suicide ideation in national wide data assets, although some states and territories have developed methodologies to do so within their individual datasets.

Clinical data from ambulance attendances have the potential to help broaden understandings of suicidal and self-harm behaviours in Australia, and to identify opportunities for improved intervention or postvention.

The National Ambulance Surveillance System (NASS) is a world-first public health monitoring system providing timely and comprehensive data on ambulance attendances in Australia. The NASS is a partnership between Turning Point, Monash University and state or territory ambulance services across Australia. The NASS collates and codes monthly ambulance attendances data for participating states and territories for self-harm behaviours (suicidal ideation, suicide attempt, death by suicide, and intentional self-injury).

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Ambulance attendances: Suicidal ideation, and suicidal and self-harm behaviours

AIHW began receiving monthly ambulance attendance data for New South Wales (NSW), Victoria (Vic), Queensland (Qld), Tasmania (Tas) and the Australian Capital Territory (ACT) from January 2021. Monthly data have been received until September 2022 for ACT, Tas, Qld, and Vic, and until June 2022 for NSW. Prior to this, data included 1-month per quarter snapshots from Victoria (Vic), Tasmania (Tas), the ACT, and NSW from March 2018 to December 2020, and Qld from March 2020 to December 2020.

See Data development activities to learn more about the ongoing developments relating to ambulance attendance data funded through this project.

Self-harm related ambulance attendances are included if self-harm occurred in the preceding 24 hours or during the ambulance attendance, with 4 categories of self-harm related ambulance attendances defined and coded as:

- self-injury (non-fatal intentional injury without suicidal intent)
- suicidal ideation (thinking about killing oneself without acting on the thoughts)
- suicide attempt (non-fatal intentional injury with suicidal intent, regardless of likelihood of lethality)
- suicide (fatal intentional injury with suicidal intent).

Suicide, suicide attempt and suicidal ideation are considered mutually exclusive; however, self-injury could be simultaneously coded with any other self-harm case category.

The number of attendances related to suicide is under-represented as ambulances do not attend all attempts, injuries, or deaths. Furthermore, when they do attend there may be insufficient information to determine suicidal intent at the scene. Rates of death by suicide have not been calculated because of small numbers, which may affect the reliability of the estimates.

Note that minor industrial action occurred in NSW on 7th April 2022, with a minimal impact on ambulance services and demand. This should be considered in any interpretation of data presented for April 2022.

For more information, see Data sources - National Ambulance Surveillance System (NASS).

State and territory variations

It is important to interpret ambulance attendance rates carefully when comparing across states and territories, as there are several factors that can influence differences. For instance, the number of ambulance services available may vary by state and territory. Some states offer free ambulance services to their residents, while others are covered by private health insurance or out-of-pocket costs or are only free to vulnerable populations (Queensland Government 2020; Tasmanian Government Department of Health 2021; NSW Ambulance n.d.; ACT Emergency Services Agency n.d. & Victorian Government Department of Health 2022). Furthermore, paramedics record information that is relevant to patient care, rather than for research purposes. Data collected by paramedics may not be consistent between state and territories (Lubman et al. 2020). Although, Turning Point (the data custodian) obtains a degree of consistency between states and territories through their coding practices. Therefore, factors such as these are unmeasurable in these data and may influence some variation in the rate of attendances across states and territories.

2021

Throughout 2021, across NSW, Vic, Qld, Tas and the ACT, ambulances attended around 90,100 incidents, or an average around 9,000 incidents each month, that involved suicidal thoughts and behaviours (suicidal ideation or suicide attempt).

During 2021, the average monthly rates of ambulance attendances (per 100,000 population) for either suicidal ideation or suicide attempt were:

- 34 in NSW (the lowest monthly rate was 29 and the highest was 40)
31 in Vic (the lowest monthly rate was 26 and the highest 36)
50 in Qld (the lowest monthly rate was 43 and the highest 55)
28 in Tas (the lowest monthly rate was 24 and the highest 34)
38 in the ACT (the lowest monthly rate was 31 and the highest 47)

2022
Ambulance attendance data for ACT, Qld, Tas and Vic is available up till September 2022 with data for NSW available up till June 2022.

This data shows that the average monthly rates of ambulance attendance per 100,000 population for suicidal ideation or suicide attempts combined were:

- 27 in NSW (the lowest monthly rate was 23 and the highest 32)
- 25 in Victoria (the lowest monthly rate was 22 and the highest 28)
- 45 in Qld (the lowest monthly rate was 38 and the highest 50)
- 36 in Tas (the lowest monthly rate was 31 and the highest 40)
- 29 in ACT (the lowest monthly rate was 22 and the highest 37)

Generally, for the available states and territories across both 2021 and 2022, average monthly rates of ambulance attendances per 100,000 population is highest for suicidal ideation, followed by suicide attempts, and lowest for self-injury. However, for Tas and the ACT, there are individual months where the rate of suicide attempts is higher than the rate of suicidal ideation.

The interactive data visualisation shows the average monthly rate of ambulance attendances (averaged across 12 months of a calendar year) for suicidal ideation and self-harm behaviours (self-injury and suicide attempt). These categories are subdivided by state and territory. Selection for years where monthly ambulance attendance data are also available (from 2021 onwards).

Gender variations
There are distinct differences between genders when examining deaths by suicide and intentional self-harm hospitalisations; higher rates of deaths by suicide are seen in males compared with female (see Deaths by suicide over time) while females have higher rates of hospitalisations for intentional self-harm (see Intentional self-harm hospitalisations). Ambulance attendances provide further context to these gender differences. Ambulance attendances capture if the intent of the self-harm was suicidal and therefore can provide information on the extent of these behaviours in the community.

While more males die by suicide compared to females in Australia, females tend to self-harm or attempt at higher rates than males. Overall, across the 5 available states and territories in 2021, the rate of ambulance attendance with self-injury and for suicide attempts is higher for females compared to males. Attendance rates for suicidal ideation are higher in females than males in ACT, Qld and Vic. However, in NSW and Tas, attendances for suicidal ideation for males and females are similar (this can be more clearly observed when viewing the visualisation with the error bars shown).
The interactive data visualisation shows ambulance attendances for suicidal ideation and self-harm behaviours (self-injury and suicide attempt) for 2021. These categories are subdivided by sex (male and female) to show gender variations. Crude rate (per 100,000) or number of attendances can be selected, with an option to show or hide error bars. Selection for different state or territories (ACT, NSW, QLD, TAS, Vic) are also available for viewing.

Overall, the largest difference in ambulance attendance rates for males and females are for suicide attempts. During 2021, the annual ambulance attendance rates for suicide attempts per 100,000 population for females were:

- 133 compared to 78 for males, in NSW
- 194 compared to 97 for males, in Vic
- 266 compared to 156 for males, in Qld
- 195 compared to 107 for males, in Tas
- 234 compared to 110 for males, in the ACT.

Age and gender variations

The interactive data visualisation below illustrates the distribution of self-harm related ambulance attendances separately for males and females by 5-year age groups. For this visualisation, ambulance attendance data for 2021 in NSW, Vic, Qld, Tas and the ACT have been combined.

In general, there were higher numbers of attendances for self-harm behaviours in the younger age groups for both males and females. Attendance numbers generally decreased with increasing age.

During 2021:

- the number of attendances for self-injury were highest for the 15-19 years age group for both males and females (1,300 and 3,900 attendances respectively), however attendances for females aged 15-19 years was approximately 3 times the number of attendances for males of the same age
- attendances for suicidal ideation were highest for females in the 15-19 age group (with 5,900 attendances)
- attendance for suicidal ideation were highest for males in the 15-19 age group and 20-24 age group, with almost equally high numbers of attendances (3,300 attendances respectively)
- attendances for suicide attempts were highest in the 15-19 years age group for females (4,800 attendances) and in the 20-24 years age group for males (1,600 attendances); the number of attendances for females aged 15-19 years was approximately three times the number for males of the same age.

The interactive data visualisation shows the distribution of ambulance attendances for suicidal ideation and self-harm behaviours (self-injury and suicide attempt) for 2021. The data is divided according to age (5-year age groups) and gender (male and female) to highlight variations. Crude rate (per 100,000) or number of attendances and attendance type can be selected, with an option to show or hide error bars.
Trends in suicidal and self-harm behaviours are a matter of public and policy interest. However, interpretation of trends and changes in rates is complicated by large variations due, in part, to small numbers which produce large confidence intervals.

The following time series visualisations contain monthly data from January 2021 until September 2022 for Vic, Qld, Tas, ACT and until June 2022 for NSW. Data prior to 2021 are based on 1-month per quarter snapshots between March 2018 and December 2020 from NSW, Vic, Tas and the ACT, and between March 2020 and December 2020 for Qld.

Caution is advised when making month to month comparisons, particularly for the 1-month per quarter snapshot data (pre-2021 data). It is advised to compare the same months over a few years to allow for any seasonal effects and variations at different times of year. When comparing changes to estimates over time it is advised to ‘Show error bars’ on the visualisation. These show the 95% confidence interval for the crude rate which can vary widely in the case of small populations. This means that we are 95% confident that the true number falls within the interval range.

Over the time series in the selected state and territories (see above box for details), the general trend for the rate of ambulance attendances:

- increased in NSW for suicidal ideation and suicide attempts from March 2018 to Jan 2021, before decreasing over 2021 and 2022. Self-injury attendances in NSW followed similar trends to suicide attempt across the time series but smaller variation in rates
- decreased, overall, in Vic for suicidal ideation from December 2020 until September 2022
- suicide attempts also decreased in Vic from December 2020 to April 2022, before increasing again to just below December 2020 rates. Self-injury attempt rates slightly increased over the time series until August 2021 before steadily declining back to March 2018 levels.
- showed no clear direction in Queensland for any of the attendance types, with rates remaining similar across the time series
- increased, in Tas for self-injury, suicidal ideation and suicide attempts from September 2021 until September 2022, noting that rates vary greatly between months due to smaller numbers
- decreased, overall, in the ACT for self-injury and suicidal ideation. Suicide attempts have slightly increased overall, noting that rates vary greatly between months due to smaller numbers.

The interactive timeseries visualisation shows ambulance attendances for suicidal ideation and self-harm behaviours. Crude rate or frequency can be chosen, including which state or territory. Quarterly (2018-2020) and monthly data (2021 onwards) is provided, with an option to show error bars. The categories included are self-injury, suicidal ideation, and suicide attempt.
Patterns by gender over time

Over the time series in the selected state and territories, the general trend for the rate of ambulance attendances for:

- self-injury tended to be higher for females compared to males, across NSW, Vic, Qld and the ACT
- suicidal ideation were similar for females and males across NSW, Vic, Qld and Tas
- suicide attempts were higher in females than males in NSW, Vic, and Qld.

From around March-April in Tas and the ACT, suicide attempts attendance rates are distinctly higher in females than males. Prior to this period, no clear difference in attendance rates were observed (which can be more clearly seen when viewing the visualisation with the error bars shown).

The interactive timeseries visualisation shows ambulance attendances for suicidal ideation and self-harm behaviours categorised by gender (females and males) to show patterns over time. Crude rate or frequency can be chosen, with an option to show or hide error bars. Selection for different state or territories and type of suicide behaviour are also available to view.
Patterns by age and gender over time

There is a distinct variation in ambulance attendances for suicidal and self-harm behaviours between age groups. From June 2018 to June 2022, in NSW, Vic, Tas and the ACT combined, attendance rates for:

- female self-injury, suicidal ideation, and suicide attempts generally decreased as age increased
- male suicide attempts was highest for the 25–44 years age group
- female self-injury, in those aged under 25 years, increased between March 2018 and August 2021, followed by an overall decline from November 2021 to June 2022
- female suicide attempts attendances in those aged under 25 years increased between March 2018 and March 2021 before steadily declining until June 2022
- male suicidal ideation decreased from January 2021 onwards for all age groups particularly those under 65 years of age.
- self-injury were higher in females aged under 24 years compared to males of the same age
- self-injury for those aged 45 years and older were similar across females and males
- suicidal ideation were higher for females compared to males for those aged under 24 years, but generally higher in males compared to females for the 25-44 years age group
- suicide attempts were higher for females compared to males for the under 24 years age group.

Qld data were received from March 2020 onwards. Therefore, to retain the fullest timeseries possible (June 2018–June 2022), Qld data have been excluded from this analysis of patterns by age and gender over time.

The interactive timeseries visualisation shows ambulance attendances for suicidal ideation and self-harm behaviours categorised by age (0 to over 65) and gender (females and males) to show patterns over time. Crude rate or frequency can be chosen, with an option to show or hide error bars. Selection for different state or territories (NSW, Vic, TAS and ACT) and type of suicide behaviour are also available to view.
Ambulance attendances for suicide death and suicide attempts, by modality

Monitoring the modality used in a person’s death by suicide or suicide attempts can play an important role in prevention of similar events in the future. These data are provided to inform discussion around restriction of access to means of self-injury as a policy intervention for the prevention of suicide and self-harm.

Please consider your need to read the following information. If this material raises concerns for you or if you need immediate assistance, please contact a crisis support service (https://www.aihw.gov.au/suicide-self-harm-monitoring/research-information/crisis-support), available free of charge, 24 hours a day, 7 days a week.


For each month between January 2021 until June 2022 in NSW, Vic, Qld, Tas and the ACT combined, the percentage of ambulance attendances for:

- suicide attempts were highest for attempts by alcohol and other drug (AOD) and lowest for hanging presentations
- suicide deaths were highest for deaths by hanging and lowest for deaths by AOD
- suicide attempts by AOD, hanging, and other modalities showed no particular variation over time
- suicide death by hanging, AOD, and other modalities show some month-to-month fluctuations due to small numbers, but no clear change in trend.

The timeseries visualisation shows the proportion of ambulance attendances for suicide attempt and suicide death from 2021, categorised by modality (AOD, hanging and other).
Content warning:
The data in this visualisation might be distressing to some readers as it contains data on the modality of suicide deaths and attempts. Please consider your need to read the following information. If this material raises concerns for you or if you need immediate assistance, please contact a crisis support service, available free of charge, 24 hours a day, 7 days a week.

Please consider the Mindframe guidelines if reporting on these statistics.

Proceed to visualisation

References


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Suicide & self-harm monitoring: Intentional self-harm hospitalisations

If at any point you feel worried about harming yourself while viewing this information—or if you think someone else may be in danger—please stop reading and seek help.

What is intentional self-harm?

Intentional self-harm is often defined as deliberately injuring or hurting oneself, with or without the intention of dying. Intentional self-harm comes in many forms, and affects people from different backgrounds, ages and lifestyles. The reasons for self-harm are different for each person and are often complex.

The term ‘intentional self-harm’ in the National Hospital Morbidity Database (NHMD) provides information on patients admitted to hospital for self-poisoning or self-injury, with or without suicidal intent—and therefore includes both suicide attempts and non-suicidal self-harming behaviours.

Most people who self-harm do not go on to end their lives—but previous self-harm is a strong risk factor for suicide. Therefore, monitoring of intentional self-harm is key to suicide prevention.

What are the sources of data on intentional self-harm?

Understanding the scale of the problem of intentional self-harm in Australia is difficult because many cases of self-harm are unreported, unless medical treatment is required.

- Only those patients admitted to hospital for intentional self-harm are currently routinely reported in national data sets.
- Presentations to hospital emergency departments relating to suicide attempts or intentional self-harm cannot be easily identified in the current national emergency department data collection.
- Data collections from general practitioners or mental health services do not routinely capture patients treated for intentional self-harm.
- Data are available from ambulance attendance records and national population surveys (see below).

Improving self-harm data

The NHMD is the national source of hospitalisation data in Australia. Data on the patient’s diagnosis, interventions and ‘external cause’ (including intentional self-harm) are reported to the NHMD by all states and territories using the International statistical classification of diseases and related health problems, 10th revision, Australian modification (ICD-10-AM) and the Australian Classification of Health Interventions (ACHI). The World Health Organization’s Eleventh revision of the International Classification of Diseases (ICD-11)—yet to be adopted in Australia—has the capability to classify the intent of the external cause of an injury.

In recognition of the need for better data around suicide and self-harm, the AIHW is currently working with key stakeholders, including the Mental Health Information Strategy Standing Committee and Emergency Department data custodians to develop a nationally consistent method to identify and collect data on suicide-related ED presentations.

National survey data

One nationally representative survey to collect data on self-harm is the Australian Child and Adolescent Survey of Mental Health and Wellbeing. In this survey, data on self-harm are available for adolescents aged 12-17. The 2007 National Survey of Mental Health and Wellbeing also includes questions on previous suicidal behaviour. This survey provides lifetime prevalence estimates of mental disorders for Australians aged 16-85.

COVID-19

The data reported are up to 30 June 2021, as such these data include the initial COVID-19 period.
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Intentional self-harm hospitalisations by states & territories

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see Technical notes.

How do intentional self-harm hospitalisations vary across states and territories?

In 2020–21:

- there were more than 29,900 hospitalisations due to intentional self-harm in Australia, with the highest proportion (31.7%) in Queensland
- the rate of intentional self-harm hospitalisations varied between states and territories in 2020–21, with the Northern Territory reporting the highest rate (238 hospitalisations per 100,000 population), which is more than double the national rate (116 hospitalisations per 100,000 population)
- the lowest rate was recorded in New South Wales (77 hospitalisations per 100,000 population).

Reporting is based on a patient’s usual residence, not necessarily where they received treatment.


The line graph shows rates of intentional self-harm hospitalisations from 2008–09 to 2020–21 for each state and territory and the total for Australia. Users can also choose to view age-specific rate, numbers and proportion of hospitalisations for intentional self-harm by states and territory by sex and specific age groups. Over the majority of the time period, the Northern Territory had the highest rates of intentional self-harm hospitalisations, except for 2009–2010 where the rates in South Australia (146.8 per 100,000) were slightly higher than Northern Territory (146.6). Rates in the Northern Territory increased from 162.4 per 100,000 population in 2008–09 to 238.1 in 2020–21. In 2020–21, Queensland had the second highest rate at 183.1 hospitalisations per 100,000 population. The total rate for Australia in 2020–21 was 116.3 per 100,000 population.
How have rates of intentional self-harm hospitalisations changed over time by state and territory?
Throughout 2008–09 to 2020–21, rates of intentional self-harm hospitalisations in Queensland, South Australia and the Northern Territory were consistently higher than that of the national rate.

From 2008–09 to 2020–21 the highest rates of hospitalisations due to intentional self-harm in Australia were generally in the Northern Territory.

- Over this period, rates of hospitalisations due to intentional self-harm in the Northern Territory increased nearly 1.5 times from 162 hospitalisations per 100,000 population to 238.
- The most notable changes between 2008–09 and 2020–21 were seen in young females.
  - The rate of intentional self-harm hospitalisations for Northern Territory females in the 0-24 age group more than tripled (from 98 hospitalisations per 100,000 population in 2008–09 to 357 in 2020–21).
  - In Queensland the rate has more than doubled for females in this age group (158 per 100,000 population in 2008–09 to 383 in 2020–21).
- In addition, rates of intentional self-harm hospitalisations for males aged 24 and below in the Northern Territory almost doubled from 90 hospitalisations per 100,000 population in 2008–09 to 166 in 2020–21.

Variation in hospital admission policy and practices between states and territories may have contributed to differences in the reporting of hospitalisation data, for further information see data quality statement - external site opens in new window.

- New South Wales reported an increase in the number of hospitalisations due to intentional self-harm in 2016–17, before decreasing from 2017–18 to 2020–21.
- Queensland reported a similar pattern in decreases between 2017–18 and 2019–20 but had an increase in 2020–21.
- Between 2011–12 and 2012–13, Victoria reported a substantial decrease in the number of hospitalisations due to intentional self-harm from more than 6,700 (120 hospitalisations per 100,000) to around 4,500 (78 hospitalisations per 100,000). This may reflect a change in Victoria's emergency department admission policy, for further information see data quality statement - external site opens in new window.

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Intentional self-harm hospitalisations by age groups

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see Technical notes.

Rates of hospitalisations for intentional self-harm are higher for females

In 2020-21:

- two thirds of hospitalisations for intentional self-harm injuries were female (66%, or over 19,800 hospitalisations)
- the rate of intentional self-harm hospitalisations was higher for females than males (153 per 100,000 population compared with 79 per 100,000 population)
- the rate for females aged 0-14 increased from 41 per 100,000 population in 2019-20 to 70 per 100,000 population in 2020-21.

This is the opposite of what is seen in deaths by suicide, where rates are higher for males than for females (see Deaths by suicide over time). This may, in part, be due to differences between methods used by males and females - with males tending to use more lethal methods than females.

Intentional self-harm hospitalisations by age and sex, Australia, 2008-09 to 2020-21.

The bar chart shows the age-specific rates of intentional self-harm hospitalisations for males and females for specific age groups and all ages combined in 2020-21. Users can also view age-specific rate, numbers and the proportion of hospitalisations for intentional self-harm by sex for each age group and year from 2008-09 to 2020-21. In 2020-21, females had higher rates of hospitalisation for intentional self-harm than males up to age 75-79. The highest rates for females were in the 15-19 years age group (697.7 hospitalisations per 100,000 population) and the 15-19 years age group for males (173.5).
Rates of hospitalisations for intentional self-harm are higher for young people
Between 2008–09 and 2020–21, the rates of intentional self-harm hospitalisations were consistently high for young people. The highest rates in 2020–21 were recorded for:
- females aged 15–19 (698 per 100,000 population), followed by females aged 20–24 (363 per 100,000 population).

The highest rates for males also occurred in these younger age groups but rates were at least 2-fold lower than those of females. For example, in 2020–21:
- the highest rate of self-harm hospitalisations was 173 per 100,000 population for males aged 15–19, while those aged 20–24 reported 166 per 100,000 population).

During this period, there was a steady increase in the rates for both males and females aged 15–19, (see Intentional self-harm hospitalisations among young people).

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Intentional self-harm hospitalisations by method

Understanding the methods used for intentional self-harm can play an important role in its prevention. These data are provided to inform discussion around restriction of access to means as a policy intervention for the prevention of suicide and self-harm.

Please consider your need to read the following information. If this material raises concerns for you or if you need immediate assistance, please contact a crisis support service, available free of charge, 24 hours a day, 7 days a week.

Please consider the Mindframe guidelines - external site opens in new window if reporting on these statistics.

The classification system used to code hospital admissions data, ICD-10-AM, uses the term ‘mechanism’ to refer to the external cause of a self-inflicted injury. Throughout Suicide & self-harm monitoring ‘mechanism’ has been used in data visualisations, while the term ‘method’ has been used in the accompanying text.

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see Technical notes.

Hospitalisations for intentional self-harm, by age, sex and mechanism, Australia, 2008-09 to 2020-21.

The line graph shows the age-specific rates of intentional self-harm hospitalisations for persons of all ages from 2008-09 to 2020-21 by method of self-harm. Users can also choose to view age-specific rate, numbers, and proportion of hospitalisations for intentional self-harm by sex for each age group. From 2008-09 to 2020-21, the highest rates of intentional self-harm hospitalisations by method were for self-poisoning by drugs in the nonopioid analgesics, antipyretics and antirheumatics drugs category, which has been the highest rate of mechanism also in 2012-13 and 2016-17. For all other years anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs was the highest category. The third highest rates during the 10-year period were for self-injury with sharp object.
Most intentional self-harm hospitalisations are due to poisoning by pharmaceutical drugs

Between 2008-09 and 2020-21, the 2 most common methods of self-harm resulting in hospitalisation were:

- **intentional self-poisoning by anti-epileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs (X61),** responsible for 40% of hospitalisations for intentional self-harm in 2020-21. Benzodiazepines are included in this category.
  - In 2020-21, around 8,000 females were hospitalised as a result of this method of self-harm, compared with about 3,800 males.

- **intentional self-poisoning by nonopioid analgesics, antipyretics and antirheumatics (X60),** responsible for 22% of intentional self-harm hospitalisations in 2020-21.
  - This category includes anti-inflammatory drugs, such as ibuprofen, antipyretics (for example, aspirin and paracetamol) and antirheumatics (some of which are used to treat arthritis).
  - More than 3 times as many hospitalisations were among females due to this method of self-harm in 2020-21 compared to male hospitalisations (over 5,300 and around 1,200 hospitalisations, respectively).

Contact with sharp objects (X78) was another common method of self-harm resulting in hospitalisation.

- Contact with sharp objects accounted for 13% of all intentional self-harm hospitalisations in 2020-21, with more hospitalisations among females than males for this method of self-inflicted injury (over 2,100 and over 1,600 hospitalisations, respectively).

Hanging (X70) and Gas (X67) were the only methods of intentional self-harm that resulted in more male hospitalisations than female in 2020-21 (507 and 314 hospitalisations, and 133 and 33 hospitalisations, respectively).
Suicide & self-harm monitoring

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Suicide & self-harm monitoring: Populations & age groups

Suicide and self-harm can affect people of all ages (except very young children), races, ethnicities, sexual orientations and occupations. However, a number of subgroups are particularly important to examine in detail because their risk of suicide or self-harm is higher than that of other populations, the impact on the community is different or they have specific requirements for culturally appropriate suicide prevention or postvention services.

- Although deaths by suicide occur more often in older age groups, it is the leading cause of death in Australian children and adolescents. Deaths by suicide at any age have profound effects on the families, friends and communities of those that die, but arguably, these effects are even greater when the person is young (see Suicide among young people).
- Similarly to employment in general, serving in the Australian Defence Force (ADF) seems to be protective against suicide as rates in both serving and reserve men are lower than that of all Australian men. However, for ex-servicemen suicide rates are higher than the general population (see Australian Defence Force suicide monitoring).
- The suicide rate in Aboriginal and Torres Strait Islander peoples is twice that of the non-Indigenous population (see Suicide & Indigenous Australians)—although rates vary by community, age group and sex. The high rates experienced by Indigenous Australians are due to multiple, complex and interrelated social, cultural and historical influences, including colonisation, relocation of people to missions and reserves, transgenerational grief and trauma resulting from the removal of children, racism and continued socioeconomic disadvantage. However, it is important to acknowledge that Indigenous Australians may never experience suicidal behaviours or thoughts and aspects unique to their culture can be important protective factors against suicidal or self-harming behaviours.

Understanding differences in numbers and rates of suicide, intentional self-harm and suicidal behaviours in these populations is essential for more effective suicide prevention.

Other population groups identified as priority populations for suicide prevention in Australia include lesbian, gay, bisexual, transgender or intersex (LGBTI) populations and culturally and linguistically diverse (CALD) communities. It is currently not possible to discern these groups in the available suicide and intentional self-harm data sets; however, through the National Suicide and Self-harm Monitoring Project the AIHW is looking to expand data collection on these, and other population groups (see About for information on the project).
Suicide & self-harm monitoring

Deaths by suicide among young people

Suicide is the leading cause of death among Australians aged 15-24 (see Deaths in Australia). The proportion of deaths by suicide is relatively high among children and young people due to the fact these age groups do not tend to die from other causes.

In 2021:

- 322 Australian young people (aged 18-24) took their own lives
- 112 deaths by suicide occurred among children and adolescents (aged 17 and below) with the majority occurring in those aged 15-17 (71%)
- deaths by suicide represented 34% of all deaths in young people aged 15-17 and 35% of all deaths in those aged 18-24 up from 17% and 24% respectively of all deaths in these age groups in 2001. In children aged 14 and below, the proportion of deaths by suicide is low compared with the two older age groups; in 2021 deaths by suicide represented 2.2% of all deaths in children aged 14 and below.

Suicide deaths of children and young people, Australia, 2010 to 2021.

The line graph shows the age-specific rates of suicide for children and young people aged 14 and below, 15-17 and 18-24 from 2010 to 2021. Users can also choose to view the number of deaths by suicide and deaths by suicide as a proportion of all causes of death for each age group over the period.
Throughout 2010 to 2021, age-specific suicide rates:

- were higher for young adults aged 18–24 (14.6 per 100,000 in 2021) compared to both adolescents aged 15–17 (8.9 in 2021), and children aged 14 and below (0.7 in 2021)
- increased in young people aged 18–24 (from 10.8 deaths per 100,000 population in 2010 to 14.6 in 2021) while remaining relatively stable for those aged 15–17 (7.9 to 8.9 deaths per 100,000 population)
- ranged from 0.3 deaths per 100,000 population in 2010 to 0.07 in children aged 0–14.
Intentional self-harm hospitalisations among young people

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the Technical notes.

The data presented here are for children and young people aged between 0 and 24, grouped into 3 age ranges: 14 and below, 15–19 and 20–24 years. For children, especially those aged under 10, it is difficult to determine whether a self-inflicted injury was done with intent to self-harm.


The line graph shows age-specific rates of intentional self-harm hospitalisations for young people aged 14 and below, 15–19 and 20–24 from 2008–09 to 2020–21. Users can also choose to view age-specific rate, numbers and proportion of hospitalisations for intentional self-harm by sex for each age group. Between 2008–09 and 2020–21, rates of intentional self-harm hospitalisations were highest for young people aged 15–19 ranging from 245.6 per 100,000 population in 2008–09 to 430.2 in 2020–21.

Young people have the highest rates of hospitalisation for intentional self-harm

In 2020–21:

- the age-specific hospitalisation rate due to intentional self-harm was lowest for children aged 14 and below (39 per 100,000 population)
the rate for young people aged 15–19 was 430 hospitalisations per 100,000 population, while the rate for those aged 20–24 was lower (263).

the rate for females aged 0–14 increased from 41 hospitalisations per 100,000 population in 2019–20 to 70 in 2020–21.

the age and sex-specific rate was highest for females aged 15–19 (698 hospitalisations per 100,000 population), followed by females aged 20–24 (363).

rates for young males were lower across all ages. The lowest rate was for males aged under 14 was 9 hospitalisations per 100,000 population followed by 166 and 173 for males aged 20–24 and 15–19, respectively.

Rates of intentional self-harm hospitalisations for girls and young females are rising

From 2008–09 to 2020–21:

- there has been a greater then 3-fold increase to the rate of intentional self-harm hospitalisations in females aged 14 and below (from 19 hospitalisations per 100,000 population to 70).
- the rate of intentional self-harm hospitalisations in females aged 15–19 has risen from 374 hospitalisations per 100,000 population to 698, and the rate for females aged 20–24 has increased from 295 to 363.
- rates of intentional self-harm hospitalisations for males have also increased over this period but not to the same extent as those of females; the greatest increase was in the 15–19 age group (from 124 hospitalisations per 100,000 population to 173).
Deaths by suicide amongst Indigenous Australians

If at any point you feel worried about harming yourself while viewing the information on this website - or if you think someone else may be in danger - please stop reading and seek help.

For further information about Aboriginal and Torres Strait Islander peoples’ wellbeing, mental health and suicide prevention, see the Indigenous Mental Health & Suicide Prevention Clearinghouse - external site opens in new window managed by the AIHW. This website was developed in consultation with experts in Indigenous mental health and suicide prevention, practitioners and policy makers. It brings together key research to improve the evidence base on Indigenous mental health and suicide prevention.

Age-standardised suicide rates among Aboriginal and Torres Strait Islander people are substantially higher than those in non-Indigenous Australians. Reducing deaths by suicide and suicidal behaviour among Indigenous Australians is an issue of major concern for many Indigenous communities and a public health priority for all Australian governments.

Numbers of deaths by suicide and age-standardised rates are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only (see Technical notes for further information).

The line graph shows the age-standardised rates of suicide for Indigenous and non-Indigenous people from 2001 to 2021. Users can also choose to view age-standardised rates, numbers of deaths by suicide and deaths by suicide as a proportion of all causes of death for Indigenous and non-Indigenous people by sex.
How do suicide rates differ between Indigenous and non-Indigenous Australians?

From 2001 to 2021, age-standardised rates:

- fluctuated in Indigenous males from a low of 25.1 deaths per 100,000 population (75 deaths) in 2008 to 38.6 (134 deaths) in 2021
- could not be reported for some years for Indigenous females due to small numbers of deaths by suicide; however, for those years that can be reported, rates fluctuated from 7.2 deaths per 100,000 population (22 deaths) in 2006 to 16.1 (62 deaths) in 2021
- for Indigenous Australians, ranged from 1.4 to 2.4 times that of non-Indigenous Australians.

In 2021:

- suicide accounted for 5.3% of all deaths of Aboriginal and Torres Strait Islander people while the comparable proportion for non-Indigenous Australians was 1.8%
- almost one third (32%) of all deaths by suicide in Indigenous people were female, this was greater than that seen in the non-Indigenous population (25% females).

Kreisfeld and Harrison (2020) found that over the period 2001–02 to 2015–16, there was an annual average rise of 0.4% in suicide rates for Indigenous males, while over the most recent 5-year period (2011–12 to 2015–16) the annual rate for Indigenous males increased by an average of 6.6%; however, these changes in rates were not statistically significant (see Glossary). For Indigenous females, over the period 2001–02 to 2015–16, modelling showed a statistically significant annual average rise in suicide rates of 5.8%; however, over the most recent 5-year period 2011–12 to 2015–16, rates fell by 2.5% per year, although this finding was not statistically significant (AIHW: Kreisfeld & Harrison 2020).

Caution should be exercised when analysing trends in deaths by suicide for Indigenous Australians due to data quality issues, including the under-identification of Aboriginal and Torres Strait Islander people in deaths data and the uncertainties in estimating and projecting the size and structure of the Indigenous population over time. Numbers of deaths by suicide and age-standardised rates are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. Data for Victoria, Tasmania and the Australian Capital Territory have been excluded (see Technical notes for further information). It is also important to remember that age-standardised rates based on only a small number of deaths by suicide will exhibit a large amount of variation and that increases in numbers of deaths by suicide and rates should be treated with caution as improvements in identifying Indigenous status among deaths data may (at least in part) account for the rise in case numbers and rates.

Suicide rates are more than twice as high in young Indigenous Australians compared to non-Indigenous Australians.
Suicide contributes to premature mortality in Indigenous Australians, especially in the younger age groups. Data from the National Mortality Database and the Australian Bureau of Statistics Causes of Death from 2017 to 2021 showed the rates of suicide deaths per 100,000 people among Indigenous Australians were 16.6 and 47.6 in those aged 0-24 and 25-44 years respectively. These rates were 3.1 and 2.9 times as high as in non-Indigenous Australians in the respective age groups (5.3 and 16.2 per 100,000 respectively). This difference was less pronounced in the 45-64 age group, with a suicide rate of 21.1 among Indigenous Australians compared to 17.4 in non-Indigenous Australians. However, non-Indigenous Australians had a higher suicide rate in the 65 and over age group than Indigenous Australians (13.3 compared to 8.9 per 100,000).

Suicide deaths also represent a higher proportion of deaths in young Indigenous Australians compared to non-Indigenous Australians. From 2017 to 2021, almost a quarter (24%) of deaths in Indigenous Australians aged 0-24 were due to suicide, compared to 17% in non-Indigenous Australians in this age group. However, in older age groups, non-Indigenous Australians had a higher proportion of death by suicide than Indigenous Australians. For instance, about 5% of all deaths were attributed to suicide in non-Indigenous Australians aged 45-64 years, compared to 2% in Indigenous Australians aged 45-64.

Suicide deaths by Indigenous status and age groups, selected states and territories, 2017-2021.

This bar chart shows the death by suicide crude rates (per 100,000), number and per cent of all cause of deaths for Indigenous and non-Indigenous, by age group, from 2016-2021. Users can also choose to view by 5-year aggregates from 2001-2005 to 2017-2021.

In 2017 to 2021, the highest Indigenous suicide rates were in those aged 25-34 in Western Australia and the Northern Territory (83.4 and 51.9 deaths per 100,000 people) and in those aged 35-44 in Western Australia, South Australia and Queensland (62.8, 57.7 and 54.6 deaths per 100,000 people, respectively). In Queensland, Indigenous suicide rates in the 25-34 age group were also high compared to other age groups (47.1 per 100,000), only slightly lower than the 35-44 age group (51.6 per 100,000). In contrast, those aged 45 years and over had the lowest Indigenous suicide rates, except in Western Australia and New South Wales where those aged 0-24 had the lowest suicide rates.

Deaths from suicide, by Indigenous status and age, selected states and territories, 2017-2021.

This bar chart shows the age-specific rates (per 100,000) for deaths from suicide, for Indigenous and non-Indigenous people by age group, from 2017-2021. Users can choose to view by 5-year aggregates from 2001-2005 to 2017-2021. Users can also choose to view by New South Wales, Queensland, Western Australia, South Australia, Northern Territory and the total of these states and territories.
According to the ABS Causes of Deaths data, the aged-standardised suicide rate was higher among both male and female Indigenous Australians compared to their non-Indigenous counterparts, across all states and territories in 2017 to 2021, except in South Australia where the suicide rate for Indigenous females could not be reported. Nationally, suicide rates in Indigenous males and females were around double that of non-Indigenous males and females, respectively. In Western Australia, suicide rates in Indigenous males (48.6 deaths per 100,000 population) were about twice that in non-Indigenous males (20.2) but, in Indigenous females (21.0), were 3 times that in non-Indigenous females (6.7). Indigenous suicide rates in Western Australia vary between different regions. To guide government, non-government organisations and communities in preventing suicide in Western Australia, the Western Australia Mental Health Commission developed the Western Australian Suicide Prevention Framework 2021–2025 - external site opens in new window (https://www.mhc.wa.gov.au/media/2718/draft-suicide-prevention-action-plan-2021_2025.pdf), (Government of Western Australia Mental Health Commission 2020).

Deaths from suicide, by Indigenous status, sex and selected states and territories, 2017-2021.

This bar chart shows the age-specific rates (per 100,000) for death by suicide among Indigenous and non-Indigenous people, by selected states and territories, from 2016-2020. Users can choose to view by 5-year aggregates from 2001-2005 to 2016-2020. Users can also choose to view by NSW, Qld, WA, SA, NT and the total of these selected states and territories.
Suicide deaths by Indigenous status, sex and selected states and territories, 2017–2021

Age-standardised rate (per 100,000)

Note: Only data for NSW, Qld, WA, SA and NT are included.
Source: ABS Causes of Death, Australia 2022 Supplementary Table, INJCAT 51.6 Latest data: 2021 (annual release)

References


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Intentional self-harm hospitalisations & Indigenous Australians

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the [Technical notes](https://meteor.aihw.gov.au/content/index.phtml/itemId/724188).

The quality of the hospital data provided for Indigenous status varies between states and territories. For further information, see the [data quality statement - external site opens in new window](https://meteor.aihw.gov.au/content/index.phtml/itemId/724188) and the Technical notes.

Intentional self-harm hospitalisations, by age, sex and Indigenous status, Australia, 2008-09 to 2020-21.

The line graph shows age-specific rates of hospitalisations for intentional self-harm by age, sex and persons for Indigenous Australians. Users can choose to view age-specific rate, numbers and proportion of hospitalisations for intentional self-harm by sex and Indigenous status for each age group. Rates for young Indigenous females aged 15-19 increased steeply from 683.0 per 100,000 population in 2014-15 to 1164.7 in 2016-17, declined to 1041.8 in 2018-19, before increasing again to 1180.7 in 2019-20 and declining again in 2020-21 to 1132.9. This was the highest rate of all age-groups in 2020-21, well above the next highest rate of 740.3 per 100,000 population for Indigenous females aged 20-24. The rate for all Indigenous females generally increased across the period, with some fluctuations, from 235.5 in 2008-09 to 407.7 in 2020-21.

Source: AIHW National Hospital Morbidity Database

Supplementary table: NHMIS 5E

Latest data: 2020-21 (annual release)

How common are hospitalisations for intentional self-harm among Indigenous Australians?
In 2020–21, the rate of intentional self-harm hospitalisations for Indigenous Australians (326 hospitalisations per 100,000 population) was about 3 times that of non-Indigenous Australians (108).

In 2020–21:

- the highest rate of hospitalised intentional self-harm for Indigenous Australians was in the 15–19 age group (746 hospitalisations per 100,000 population). The highest rate for non-Indigenous Australians was also recorded in the 15–19 age group but was close to half that of Indigenous Australians aged 15–19 (407)
- Indigenous females aged 15–19 recorded the highest rate of intentional self-harm hospitalisations (1,133 hospitalisations per 100,000 population), followed by those aged 20–24 (740)
- the highest rate of hospitalised intentional self-harm for Indigenous Australian males was in the 35–39 age-group (535 hospitalisations per 100,000 population), followed by those aged 45–49 (434) and 40–44 (426).

How have rates of intentional self-harm hospitalisations changed for Indigenous Australians?

From 2008–09 to 2020–21:

- the overall rate of hospitalised intentional self-harm for Indigenous Australians rose (from 203 hospitalisations per 100,000 population to 326)
- the rate of intentional self-harm hospitalisations for non-Indigenous Australians remained relatively steady over this period (from 114 hospitalisations per 100,000 population to 108).

Over this same period, the Indigenous suicide rate also rose (see, Suicide & Indigenous Australians).

Rates of hospitalisation for intentional self-harm have risen from 2008–09 to 2020–21 for both Indigenous females and males.

- Rates of hospitalised intentional self-harm for Indigenous females increased from 235 hospitalisations per 100,000 population in 2008–09 to 408 in 2020–21, while rates for Indigenous males rose from 170 hospitalisations per 100,000 population to 244.
- The greatest increase in rates was seen in Indigenous females aged 15–19 (more than doubling from 455 hospitalisations per 100,000 population in 2008–09 to 1,133 in 2020–21). Rates also increased more than 1.8 times for non-Indigenous females aged 15–19 during this period (from 365 per 100,000 population to 665)
- Rates also increased markedly in Indigenous females aged 20–24 (from 425 hospitalisations per 100,000 population to 740) and 40–44 (from 331 to 604).
Suicide & self-harm monitoring

Australian Defence Force suicide monitoring

Historically, ex-serving ADF members have faced an increased risk of suicide. Reducing the rate of suicide remains a concern in the Australian community, and a priority for the Australian Government.

To increase understanding on the complex issue of suicide in serving and ex-serving ADF members, the AIHW provides annual updates to monitor the incidence of suicide in permanent, reserve and ex-serving ADF members (see Box 1). This work has been commissioned by the Department of Veterans’ Affairs.

Rate of suicide by service status and sex, 1997-1999 to 2018-2020

Key findings

Serving permanent males and reserve males were less likely to die by suicide than the general Australian population. However, ex-serving males and females were more likely to die by suicide than the general Australian population.

Compared with the Australian population, suicide rates (after adjusting for age) between 1997 and 2020 were: 49% lower for male permanent ADF members; 46% lower for reserve ADF males; 27% higher for ex-serving ADF males; and 107% (or 2.07 times) higher for ex-serving ADF females. The rate of suicide for ex-serving ADF females was lower than the rate for ex-serving ADF males. However, subgroups within the cohort of ex-serving ADF members have different rates of suicide.

For ex-serving males who left the ADF voluntarily, the suicide rate was found to be similar to Australian males and around one-third of the rate of those who left for involuntary medical reasons (22.5 compared with 69.8 per 100,000 population).
For more information see Serving and ex-serving Australian Defence Force members who have served since 1985: suicide monitoring 1997 to 2020. Further information is presented by service status, age, sex, service, rank, length of service, time since separation and reason for separation. These factors were assessed independently to determine rates of suicide as well as concurrently using multi-factor modelling analysis.

The report also includes a special ‘in-focus’ section on broad-based risk factors relating to deaths by suicide, including biological, psychological and psychosocial risk factors. Identifying common risk factors highlights the areas of a person’s life experience that may need additional attention to provide the most effective suicide prevention interventions.

Box 1: Who is included in this report?

Permanent: ADF members serving in a full-time capacity in the Royal Australian Navy (Navy), Australian Army (Army) or the Royal Australian Air Force (Air Force) on or after 1 January 1985, and serving in a permanent capacity on 31 December 2020 or on the date they died.

Reserve: ADF members who were in the reserve forces for the Navy, Army, or the Air Force on or after 1 January 1985, and were in the reserve forces on 31 December 2020 or when they died. Many members leaving full-time service transition to the reserves for a minimum of five years. The service status ‘reserve’ includes members with a wide range of relationships to the ADF. For example, it includes personnel who have transitioned from full time service as well as both those who joined and have served solely in reserve capacity. Some reserve members may serve with enduring regular employment (active reserves), while others may not render service in any capacity (standby reserves).

Ex-serving: ADF members who were in the permanent or reserve services between 1 January 1985 and 31 December 2020, who subsequently transitioned from Defence.
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Deaths by suicide among people who used disability services

Deaths by suicide among people who used disability services and the general population data (who were not disability service users) are sourced from the AIHW report: Mortality patterns among people using disability support services: 1 July 2013 to 30 June 2018. These data include details about deaths for people who accessed disability specific support services, funded under the National Disability Agreement (NDA), from 1 July 2013 to 30 June 2018, herein referred to as ‘people who used disability services’. Deaths reported are those that occurred between 1 July 2013 to 30 June 2018. It should, therefore, be noted that the data below are not representative of all deaths of people with disability, but rather those who had access to and were successful in applying for NDA funded support services over the 5-year study period. In this reporting, the general population is the Australian population aged under 65 years, less people who used disability services. For further information on the methods of this study please see the Technical Report (https://www.aihw.gov.au/reports/disability-services/mortality-patterns-of-people-using-disability-serv/contents/technical-report). The National Disability Insurance Scheme (NDIS) has largely replaced the disability services currently provided by states and territories to people with disability under the NDA.

People living with disability are one of the Australian government’s priority populations for suicide prevention due to the high rates of suicide and self-harm among those with disability (Cth of Australia, 2022). As such, analysis and visualisation of data from the above report has been incorporated into the National Suicide and Self-harm Monitoring System.

Further, we acknowledge those who have died by suicide and those who are bereaved and affected by suicide and self-harm. Suicide and self-harm are preventable. If you, or you believe somebody you know, is experiencing suicidality, please seek help (https://www.aihw.gov.au/suicide-self-harm-monitoring/research-information/crisis-support).

Deaths by suicide, by sex

The rate of death by suicide for all males who used disability services (38 per 100,000 population) was 1.4 times greater than females who used disability services (27 per 100,000 population). The difference in rate of death by suicide between males and females is substantially smaller among those who used disability services when compared to the general population. Among the general population, the rate of death by suicide for males (17 per 100,000 population) was 2.8 times greater than females (6 per 100,000 population).

The data visualisation compares rates of deaths by suicide between the general population and disability support service users from 2013 to 2018. It is categorised by sex (females, males, persons).
For both males and females, and across each of the age groups, those who used disability services had higher rates of death by suicide compared to the general population.

The rate of deaths by suicide for females aged 20-34 years who used disability services (35 per 100,000 population) was over five times greater than the rate among females aged 20-34 in the general population (6.0 per 100,000 population). Among males aged 20-34 years, the rate of suicide (53 per 100,000) was more than double the rate among in the general population of the same age (21 per 100,000 population).

For females who used disability services, the highest rates of suicide were within the 35-49 years age group (38 per 100,000 population respectively). The rate of death by suicide among females who used disability services within the 35-49 years age group was almost five times greater than for females in the general population of the same age (8.0 per 100,000 population).

The highest rate of death by suicide, across all gender and age groups, was among men who used disability services aged 35-49 years (62 per 100,000 population respectively). For men in the general population, the highest rate of death by suicide was also among those aged 35-49 years of age (26 per 100,000 population).

For women aged 50-64 years of age, the rate of death by suicide among those who used disability services (28 per 100,000 population) was almost four times greater than among the general population (7.5 per 100,000 population). For men aged 50-64 years of age, the rate of death by suicide among those who used disability services (47 per 100,000 population) was approximately two times greater than among the general population (23 per 100,000 population).

The interactive data visualisation compares rates of deaths by suicide amongst the general population and those who used a disability support service from 2013 to 2018. The two population groups are divided according to age group from persons aged 20 to over 65 years of age. Sex can be selected (females, males, persons).
Among both disability service users and the general population, and across each of the age groups, males comprise a substantially higher percentage of all deaths by suicide compared to females. However, across each of the age groups, the percentage of all deaths by suicide that are female is higher among those who used disability services compared to the general population. For example, 37% of deaths by suicide among disability service users aged 50-64 years were female. Whereas 25% of deaths by suicide among the general population aged 50-64 years were female.

The data visualisation shows the percentage of males and females who died by suicide, from 2013 to 2018. It is divided by age groups and range from people aged 20 to all persons under 65. Viewing for the general population or those who used a disability support service can be selected.
Death by suicide (for all persons under 65 years) accounted for 5.2% of deaths by all causes among disability service users, making it the fourth leading cause of death for this population. Among the general population, death by suicide accounted for 8.9% of deaths by all causes and was the number one leading cause of death.

Particularly among the younger age groups, deaths by suicide accounted for a larger percentage of all deaths occurring within the general population as compared to those occurring within those who used disability services. Among the 20-34 years age group, deaths by suicide accounted for 31% of all deaths occurring within the general population and 15% of all deaths occurring within those who used disability services. Even so, death by suicide was the number one leading cause of death for the 20-34 years age group among both the general population and those who used disability services.

Deaths by suicide as a percentage of deaths by all causes can be viewed by hovering the mouse over the data points included within ‘Comparison of rates of deaths by suicide among people who used disability services and the general population, by sex and age group, 2013-2018’ and ‘Comparison of rates of suicide (per 100,000) among people who used disability services and the general population, by sex, 2013-2018’ visualisations above.

Deaths by suicide by primary disability

In this reporting the concept of ‘primary disability’ is that the type of disability which most clearly reflects the person's experience of disability and causes them the most difficulty in everyday life. Primary disability groups reported here are those used by the Mortality patterns among people using disability support services: 1 July 2013 to June 2018 report. It is important to note that people who live with disability can experience multiple types of disability at any point in time. The people whose data are reported here may have experienced different types of disability.

People using disability services whose primary disability was ‘psychosocial disability’ had substantially higher rates of death by suicide (101 per 100,000 population) compared to disability service users with all other primary disabilities and compared to the general population. The rate of death by suicide for disability service users with ‘psychosocial disability’ was approximately nine times greater than for the general population (11 per 100,000 population).

The rate of death by suicide for disability service users (for people aged under 65) with ‘psychosocial disability’ was 1.7 times greater than among those with ‘acquired brain injury’ (56 per 100,000 population) as a primary disability. The rate of death by suicide for those with ‘psychosocial disability’ was four times greater than among those with a ‘physical disability’ (25 per 100,00 population) as their primary disabilities. Among those with a primary ‘psychosocial disability’ the rate of death by suicide was more than six times greater than for those with hearing disability, more than nine time greater than for those with learning specific/ADD disability, and more than 25 times greater than for those with autism as their primary disability.

The data visualisation shows rates of death by suicide for those who used a disability support service, by primary disability, from 2013 to 2018. Primary disability is categorised into 6 types (Autism, specific learning/ADD, hearing disability, physical disability, acquired brain injury, psychosocial disability) and data includes people aged under 20.

Rates of suicide (per 100,000), among people who used disability services, by primary disability, 2013-2018

Rate of death by suicide (per 100,000)

Notes: Data presented above includes people aged under 20.

See notes ➤
For those using disability services whose primary disability was ‘psychosocial disability’, suicide deaths accounted for 20.7% of all deaths occurring within this group during the study period. Suicide deaths accounted for the highest percentage of all cause deaths for those with psychosocial disability compared to all other primary disabilities. The percentage of all deaths accounted for by suicide was second highest among those with a primary disability of autism. Suicide deaths accounted for 6.0% of all deaths among those with a primary disability of autism. The percentage of all deaths accounted for by suicide among people with psychosocial disability was around four times greater than those with autism.

The interactive data visualisation shows deaths by primary disability, population and cause of death for all persons aged under 65 between 2013 to 2018. Selection for mortality rate or number of deaths, cause of death (all cause or suicide) and population type are all selectable features.

The rate of death by suicide among people whose primary disability was psychosocial disability was highest for those aged 20–34 years (118 per 100,000 population). However, among all people who used disability services the highest rate of death by suicide was for those aged 35–49 years (51 per 100,000 population).

The data visualisation shows rates of death by suicide from 2013 to 2018, for the general population, disability service users and disability service users with a psychosocial disability. These categories are subdivided by age group, ranging from 20 to all persons under 65 years of age.
Among those whose primary disability was psychosocial disability, rates of death by suicide were highest for the 20-34 year age group (118 per 100,000 population) and lowest for the 50-64 years age group (86 per 100,000 population). Even so, the rate of death by suicide among those with psychosocial disability aged 50–64 years, was considerably higher than the peak rates of death by suicide for all disability service users (51 per 100,000 population among those aged 35-49 years) and the general population (17 per 100,000 population among those aged 35-49 years).

Rates of suicide by all those who used disability services was curved across age groups, peaking in the 35-49 year age group.

References

Suicide & self-harm monitoring

Need help now?
Lifeline 13 11 14
More (/suicide-self-harm-monitoring/research-information/crisis-support)

Indicates unlocked content for analysts Covers: Content is restricted based on your access level?

Global Administrator

LGBTIQ+ Australians: suicidal thoughts and behaviours and self-harm

If at any point you feel worried about harming yourself while viewing this information – or if you think someone else may be in danger - please stop reading and seek help. You can access LGBTIQ+ resources online - external site opens in new window (https://qlife.org.au/resources), and Qlife (trained LGBTIQ+ peer support): Telephone 1800 184 527 (3:00pm - midnight everyday 7 days a week) or by webchat - external site opens in new window (https://qlife.org.au/resources/chat).

The acronym LGBTIQ+ is used here as an umbrella term to refer to lesbian, gay, bisexual, trans/transgender, intersex, queer and other sexuality, gender and bodily diverse people and communities.

The data presented on these webpages are from the 2019 Private Lives 3 survey (PL3). Whilst this survey included participants with an intersex variation/s, the data are not able to be disaggregated by this category and, therefore, the acronym LGBTQ+ is used when referring to the PL3 results. LGBTQ+ is used when referring to communities more generally and different acronyms may be used throughout these pages, depending on how communities are represented within the different data sources discussed.


LGBTIQ+ communities have been identified as priority populations under The National Mental Health and Suicide Prevention Agreement (Cth of Australia, 2022) and for data development as part of the National Suicide and Self-harm Monitoring System. Under the agreement, governments have a responsibility to support priority populations, who may be at higher risk of mental ill health and suicide due to vulnerability caused by social, economic, and environmental circumstances.

Data on suicide and self-harm among LGBTIQ+ people from the Private Lives 3 and Writing Themselves In 4 surveys

The Australian Research Centre in Sex, Health and Society (ARCSHS) at La Trobe University runs Australia’s two largest targeted surveys of LGBTIQ+ adults and LGBTQA+ young people, the Private Lives and Writing Themselves In surveys, respectively (Hill et al. 2020, 2021). The most recent iterations of these surveys, Private Lives 3 (PL3) and Writing Themselves In 4 (WTI4) were undertaken in 2019. The PL3 and WTI4 datasets are the largest and most comprehensive available for the LGBTIQ+ population in Australia and include a diverse sample of participants from all states and territories and demographic groups (Hill et al. 2020, 2021).

ARCSHS has provided the AIHW with existing data on suicide and self-harm from PL3 and WTI4, aggregated by state/territory, age-group, gender and sexual orientation. In addition, the AIHW has engaged ARCSHS to undertake secondary analysis of the data from PL3 and WTI4, including:

- Types of gender affirmation accessed by trans and gender diverse adults and association with health and wellbeing outcomes (PL3).
- Types of gender affirmation accessed by trans and gender diverse young people and association with mental health outcomes and suicidality (WTI4).
- The role of relationship status and gender of relationship partner in shaping health and wellbeing outcomes among multigender attracted (bisexual+) adults (PL3).

Data on suicidal thoughts and suicide attempt among LGBTIQ+ adults from the PL3 survey are presented in the following section. This is the first tranche of data from PL3 and WTI4 to be published on the AIHW Suicide and self-harm monitoring website. Data on suicidal thoughts and attempts and self-harm among young LGBTQA+ young Australians from WTI4 and the results of the secondary analysis of PL3 and WTI4 will be published later in 2023.

The findings of PL3 are consistent with evidence from Australia and overseas, which indicate that LGBTIQ+ communities experience higher levels of mental ill health, suicidality and self-harm, compared with the general population (Hill et al. 2020, 2021, Marchi et al. 2022, Swannell et al. 2016, Zwickl et al. 2021). Within the LGBTIQ+ research, trans and gender diverse participants appear to experience a greater risk of suicidal thoughts and behaviours, compared with cis-gendered participants. For instance, among PL3 participants:
• The lifetime prevalence of suicidal thoughts ranged from 64% among cisgender men to 90% among non-binary participants and 91% among trans men.
• More than half of trans men reported having attempted suicide in their lifetimes (53%), in contrast to around one-fifth of cisgender men (22%).

Other Australian studies of trans people have found that a large proportion of participants (ranging from 43 to 48%) have attempted to take their own lives at some point (Zwickl et al. 2021, Bretheron et al. 2021, Strauss et al. 2017).

A limitation of PL3, WTI4 and other targeted, community surveys of LGBTQ+ people is that they tend not to be based on probability sampling and, as a result, it is not possible to conclude that they provide representative data for the LGBTQ+ population. However, these surveys do provide important information about the survey respondents, which can inform the work of LGBTQ+ researchers and advocates, and policy makers.

What other national suicide and self-harm data are available for LGBTQ+ communities in Australia?

There are currently no reliable national data on rates of suicide and self-harm among LGBTQ+ communities in Australia. The two key administrative datasets used by the AIHW to report on rates of suicide and hospitalised self-harm, the National Mortality Database (NMD) and the National Hospital Morbidity Database (NHMD) do not include information on LGBTQ+ status. LGBTQ+ status is not available in any national linked administrative datasets and has not been enumerated in the Census of Population and Housing. Data gaps could be improved by the broader inclusion of the Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables, 2020 - external site opens in new window (ABS 2020) in national collections.

State and territory suicide registers include variables on sexual orientation and gender, however, LGBTQ+ status tends to be underreported in these surveillance systems (CCOV 2022, Leske et al. 2022). To date, the Victorian Suicide Register (VSR) and the Queensland Suicide Register (QSR) are the only state suicide registers to publish data on suicide deaths among LGBTQ+ people. In each state, the numbers are too small to disaggregate by gender and sexual orientation (CCOV 2022, Leske et al. 2022).

The population representative, National Study of Mental Health and Wellbeing (2020-21 and 2021-22), conducted by the Australian Bureau of Statistics (ABS) collected information on suicidality and self-harm and was the first ABS collection to use the Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables, 2020 - external site opens in new window (ABS 2020, 2020-21b). So far, only results from the 2020-21 cohort have been published, with the ABS noting that the ‘sample achieved for 2020-21 is insufficient to produce reliable estimates of mental disorders for all items within the Standard’ (ABS 2020-21b). The ABS has advised that further disaggregation of mental health data by items within the Standard may be possible once the results from the 2020-21 and 2021-22 cohorts are combined (ABS 2020-21b). The combined results are scheduled to be released by the ABS on 10 October 2023.

Prevalence of suicidal behaviour and thoughts among LGBTQ+ adults - data from the 2019 Private Lives 3 (PL3) survey

We acknowledge those from the LGBTQ+ community who have died by suicide and those bereaved by suicide. If you, or you suspect someone you know is in distress, please access help on the Crisis support page. You can access LGBTQ+ resources online - external site opens in new window (Qlife.org.au/resources), and Qlife (trained LGBTQ+ peer support): Telephone 1800 184 527 (3:00pm - midnight everyday 7 days a week) or by webchat - external site opens in new window (Qlife.org.au/resources/chat).

PL3 is the third iteration of national surveys investigating the health and wellbeing of lesbian, gay, bisexual, trans and gender diverse and queer (LGBTQ+) adults in Australia. The PL3 survey is managed by the Australian Research Centre in Sex, Health and Society (ARCSHS) at La Trobe University in Melbourne and was developed by ARCSHS in consultation with an Expert Advisory Group comprising representatives from relevant professional networks and LGBTQ+ organisations. The survey was open to people aged 18 years and over, from 24 July 2019 until 1 October 2019 and could be completed online or in paper form if requested. A sample of 6,835 participants was achieved, whose ages ranged from 18-88 years. The PL3 survey included questions on suicide attempt and suicidal thoughts in the past 12 months and lifetime. For more information, view the PL3 national report - external site opens in new window (www.latrobe.edu.au/arcshs/work/private-lives-3).

The PL3 results relating to suicide attempt and suicidal thoughts are depicted in the visualisations below. As PL3 uses a non-probability convenience sample, the results may not be representative of the Australian LGBTQ+ population and cannot be generalised to this population group. However, they provide valuable insights into the experiences of close to 7000 people from this population group and highlight where further work is needed to obtain better data and improve outcomes for at-risk communities. Importantly, the PL3 sample allows for disaggregation of data by gender and sexual orientation, which illustrates the wide variations in experiences of suicidal thoughts.
and behaviours between the different gender and sexual orientation groups in the sample. These results are consistent with other studies that show considerable variation in the prevalence of suicidal thoughts and behaviours between sub-groups under the LGBTQ+ umbrella (e.g. Kirakosian et al. 2023, Marchi et al. 2022, Stinchcombe & Hammond 2021, Swannell et al. 2016).

The results of PL3 are not directly comparable with those for the general population from national population surveys, such as the ABS National Study of Mental Health and Wellbeing (2020-21) and the ABS National Survey of Mental Health and Wellbeing (2007). The ABS surveys used probability sample designs as well as different recruitment methods, instruments, and modes of administration (see ABS 2020-21b for information on methodology). Both types of survey designs have limitations regarding sampling LGBTQ+ communities. Targeted surveys, such as PL3, may be biased towards people with stronger attachment to the LGBTQ+ community, while population surveys may underrepresent LGBTIQ+ people (Hottes et al. 2016) and, as in the ABS National Study of Mental Health and Wellbeing (2020-21), obtain insufficient samples to report results by gender and sexual orientation. A meta-analysis of lifetime prevalence of suicide attempt among lesbian, gay and bisexual (LGB) people by Hottes et al. (2016) found that targeted community surveys reported higher prevalence of lifetime suicide attempt among LGB people, compared with results for LGB people from population surveys. Even so, LGB people reported higher prevalence of lifetime suicide attempt compared with heterosexual people, regardless of the survey type (Hottes et al. 2016).

In relation to the PL3 data, the term ‘suicidal thoughts’ is being used rather than ‘suicidal ideation’. This is because suicidal ideation is defined in national population data as ‘serious thoughts about taking one’s own life’, whereas the PL3 data item is ‘thoughts about suicide, wanting to die, or about ending your life’.

As the PL3 was a voluntary online survey, participants could leave questions blank if they wished. In these cases, the PL3 results reported below are the proportions (percentages) of those who answered the relevant question.

Suicide attempts and suicidal thoughts among PL3 participants

The visualisation below includes 4 charts that users can navigate between to view the PL3 data for suicidal thoughts and attempts broken down by either state and territory of residence, gender, sexual orientation or age group.

Nationally, around three-quarters (75%) of PL3 participants had experienced suicidal thoughts and around one third (30%) reported attempting suicide in their lifetimes.

Results by state and territory

The prevalence of suicidal thoughts and attempt among PL3 participants was similar across states and territories.

- Lifetime prevalence of suicidal thoughts ranged from 68% in the Northern Territory (NT) to 80% in the Australian Capital Territory (ACT).
- Recent (past 12 months) prevalence of suicidal thoughts ranged from 35% in the NT to 47% in Tasmania (Tas).
- Participants from Tas and Queensland (Qld) were most likely to report having attempted suicide in their lifetimes (35%), followed by those in South Australia (SA) (33%), Western Australia (WA) (32%), ACT (31%), Vic and New South Wales (NSW) (both 28%) and the NT (21%).
- Recent suicide attempt (past 12 months) was also more likely to be reported by participants from Tas (8%) and Qld (7%), followed by WA and ACT (both 6%), Vic (5%) and SA and NSW (4%).
- Recent suicide attempt is not reported for participants from the NT due to the small cell count (n=3).

Caution should be used in interpreting the results by state and territory, as they may be affected by sampling and recruitment bias, in particular for the NT, where the sample size was only 37. Relative to the general population, PL3 oversampled people from Vic and the ACT, and under-sampled people from NSW and Qld (Hill et al. 2020). There may also be confounding due to differences in the age, gender, and sexual orientation distributions of LGBTQ+ people by state and territory.

Results by age group
The results for age group show a clear gradient by age, with younger age groups more likely to report lifetime and recent (last 12 months) experience of suicidal thoughts and lifetime suicide attempt.

- Lifetime experience of suicidal thoughts ranged from around half of people aged 65 years and over (51%) to 80% of people in the 18-24 and 25-34-year age groups.
- Lifetime suicide attempt ranged from 18% of people aged 65 years and over to 34% of 18-24-year-olds.
- Recent suicide attempt was most likely among participants aged 18-24 years (10%), followed by participants aged 35-44 years (5%), then those aged 25-34 (3%), 45-54 years (2%) and 55-64 years (1%).

The patterns observed in these results are consistent with the general population results from the ABS National Study of Mental Health and Wellbeing (2020-21), which show prevalence of lifetime and recent suicidal ideation and suicide attempt is highest among the youngest age group (16-34 years) and decreases with increasing age (ABS 2020-21a). Ambulance data from the National Ambulance Surveillance System (NASS) also show higher rates of attendances for suicidal ideation and attempt among younger age groups.

The PL3 results for younger people may be influenced by the greater proportions of younger people categorised as trans, gender diverse, bisexual, pansexual and queer, relative to those in the older age groups (Hill et al. 2020). Participants in each of these categories are more likely to experience poor mental health outcomes, as well as discrimination and stigma, when compared with cisgendered, gay and lesbian participants (Hill et al. 2020).

Results by sexual orientation
The PL3 survey asks participants to select which terms best describe their sexual orientation and then asks them to select the term they would use if they had to choose only one. The options provided were developed in consultation with the PL3 Expert Advisory Group and include: ‘lesbian’, ‘gay’, ‘homosexual’, ‘bisexual’, ‘pansexual’, ‘heterosexual’, ‘queer’, ‘asexual’, ‘prefer not to have a label’, ‘prefer not to answer’, ‘don’t know’ and ‘something different’ (with free text option to describe). In the analysis, participants who selected ‘homosexual’ (due to low numbers), ‘prefer not to have a label’ and ‘something different’ as well as trans and gender diverse participants and those with an intersex variation/s who selected ‘heterosexual’ were combined into the category ‘something else’. For more information on sexual orientation in PL3, please see the PL3 national report - external site opens in new window.

The results for sexual orientation differed across response categories, apart from gay respondents, who were least likely to have experienced suicidal thoughts or attempt, recently or in their lifetimes.

- Pansexual and queer participants reported the highest prevalence of lifetime suicidal thoughts (88% and 87%, respectively), followed by bisexual and asexual participants (80% and 79% respectively), participants categorised as “something else” (75%), lesbian participants (73%) and gay participants (63%).
- A similar pattern was seen for recent suicidal thoughts, which were reported by 55% of both pansexual and queer participants, 50% of bisexual participants, 45% of respondents categorised as “something else”, 43% of asexual participants, 37% of lesbian participants and 31% of gay participants.
- Nearly half (47%) of pansexual participants reported having attempted suicide in their lifetimes, followed by queer participants (37%), “something else” (34%), bisexual (32%), lesbian (30%), asexual (27%) and gay (20%) participants.
- Participants in the “something else” sexual orientation category were most likely to report recent suicide attempt (10% of this group), followed by pansexual (8%), bisexual (6%), queer (5%), asexual and lesbian (4%) and gay (3%) participants.

There is limited research that includes the sexual orientations “pansexual”, “queer” and “asexual” as specific groups with which to compare these results. Studies that have included lesbian, gay and bisexual people as separate groups have generally reported higher levels of suicidal thoughts and behaviour among bisexual and multi-gender attracted people, compared with gay and lesbian people (e.g. Stinchcombe & Hammond 2020, Marchi et al. 2022).

Results by gender
When disaggregated by gender, the results show that trans (trans man and trans woman) and non-binary participants were more likely to have experienced recent and lifetime suicidal thoughts and suicide attempts, compared with cisgendered participants (cisgender man and cisgender woman).
Lifetime prevalence of suicidal thoughts among PL3 participants ranged from 64% of cisgender men to 90% of non-binary participants and 91% of trans men.

More than half of trans men reported having attempted suicide in their lifetimes (53%), compared with around one fifth of cisgender men (22%).

The high levels of suicidal thoughts and behaviour among trans participants are consistent with other studies of trans people in Australia. A 2017–2018 survey of Australian trans adults found that 43% of participants had attempted suicide in their lifetimes (Zwickl et al. 2021, Bretherton et al. 2021). The 2016 Trans Pathways survey of Australian trans young people aged 14–25 years reported that 48.1% of participants had ever attempted suicide (Strauss et al. 2017).

Suicide attempt, suicidal thoughts and disability or long-term health conditions in PL3

The PL3 survey asks participants whether they have a disability or long-term health condition (defined as one that has lasted or is expected to last 6 months or longer). If participants answer "yes" to this question, they are then asked a series of questions taken from the AIHW’s Standardised Disability Flag Module (SDFM). The SDFM identifies people who may be living with disability and/or long-term health conditions and the impact these conditions have on their day-to-day living (none, mild, moderate, and severe). For further information about how the SDFM was used and the limitations it may have on the data presented please see the PL3 national report - external site opens in new window.

The visualisation below includes two charts that users can navigate between. One chart shows the prevalence of suicidal thoughts and attempts among PL3 participants according to their disability status. The other chart shows suicidal thoughts and attempts among PL3 participants who reported having a disability or long-term health condition, according to the impact on their day to day living.

The visualisation includes two charts that users can navigate between. One chart shows the prevalence of suicidal thoughts and attempts among PL3 participants according to their disability status. The other chart shows suicidal thoughts and attempts among PL3 participants according to their disability or long-term health condition status. The other chart shows suicidal thoughts and attempts among PL3 participants who reported having a disability or long-term health condition, according to the impact on their day to day living.

Results by disability or long-term health condition status

PL3 participants who reported they have a disability or were unsure whether they have a disability were most likely to have experienced suicidal thoughts in their lifetimes (85% of participants in both categories), compared with PL3 participants who did not have a disability (64%).

PL3 participants who reported having a disability or being unsure about having a disability also reported the highest prevalence of recent suicidal thoughts (54% and 53%, respectively), compared with those without a disability (29%).

Suicide attempt was more common among PL3 participants who reported having a disability, with 40% having attempted suicide in their lifetimes. This is twice the proportion of PL3 participants without a disability (20%) who reported lifetime suicide attempt.

Results by disability or long-term health condition impact on day-to-day activities
The results for lifetime and recent suicidal ideation and suicide attempt show a clear gradient by the severity of activity limitation.

- Among PL3 participants with a disability or long-term health condition who reported severe limitations, 91% reported having suicidal thoughts in their lifetimes and 50% reported attempting suicide in their lifetimes. More than two thirds (68%) of these participants reported recent (past 12 months) suicidal thoughts.
- For PL3 participants with a disability or long-term health condition who had no activity limitation, 71% reported lifetime suicidal thoughts and 26% reported lifetime suicide attempt.

References


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The use of mental health services, psychological distress, loneliness, suicide, ambulance attendances and COVID-19

While there has been a rise in the use of mental health and crisis services during the COVID-19 pandemic, the pandemic was not associated with a rise in suspected deaths by suicide in 2020 and 2021, see Suspected deaths by suicide for details. Preliminary national mortality data published by the Australian Bureau of Statistics for 2020 to 2021 show that the rate of death by suicide in Australia was lower in 2020 (12.1 per 100,000 population) and 2021 (12.0) than in 2019 (13.1), see Deaths by suicide over time.

Deaths referred to the coroner where initial investigation points to suicide are referred to as ‘suspected deaths by suicide’. In some cases it can take a number of years for the coronial process to determine if suicide was the cause of a specific death. These data are not directly comparable with coroner-certified deaths as reported in Deaths by suicide in Australia or published by the Australian Bureau of Statistics as ‘Causes of Death, Australia - external site opens in new window’.

Use of mental health services

Since April 2020, the AIHW has compiled and reported mental health-related data. This reporting commenced as part of the National Suicide and Self-harm Monitoring Project. Data from the Medicare Benefits Schedule (MBS), Pharmaceutical Benefits Scheme (PBS), and crisis and support organisations (Lifeline, Beyond Blue, Kids Helpline) were collected weekly in 2020, fortnightly in 2021 and monthly in 2022. These data are shared within government to inform the mental health response to the COVID-19 pandemic. The most current data are available at Mental health services in Australia.

Increased demand for mental health services and crisis and support organisations between 2020 and 2022

These data show that since the onset of the COVID-19 pandemic, overall, there has been a substantial increase in the use of crisis and support organisations (as measured by the number of calls or other contacts, such as webchat or email) and mental health-related services (as measured by MBS and PBS claims processed). The extent to which this increase in demand has been driven by a rise in psychological distress (rather than an increase in people seeking assistance for other reasons, such as loneliness or concern about contracting COVID-19) is unclear. However, given a range of survey data indicate that the average level of psychological distress rose in Australia in 2020 and 2021 from pre-pandemic levels (see psychological distress below), increased demand for mental health-related services and crisis and support organisations is almost certainly indicative of an increase in the need for mental health support and assistance as a result of the pandemic.

Psychological distress

Psychological distress is commonly measured using the Kessler Psychological Distress Scale—10 items (K10). The K10 questionnaire was developed to yield a global measure of psychological distress, based on questions about people’s level of nervousness, agitation, psychological fatigue and depression in the past 4 weeks. The Kessler 6 Scale is an abbreviated version of K10. There is an association between high levels of psychological distress and serious mental health disorders. As a result, instruments such as K10 and K6 can be used in representative sample surveys as a broad indicator of the level of these disorders in the Australian population (Slade, Grove & Burgess 2011). This is important, as there is an association between mental health issues and deaths by suicide. Data from the Queensland Suicide Register for 2016-2018 based on police and coroners reports, show that 53% of people who died from suicide reportedly had a mental health condition (Leske et al. 2022). Leske et al. (2022) note that this is likely to be an underestimate. Australia wide, just under 63% of people who died by suicide in 2021 had a recorded mental and behavioural disorder as an associated cause of death (ABS 2022a).

There are several ways to gain insights into the level of psychological distress in the community and monitor trends over time.

One way is to look at trends in severe levels of psychological distress through the use of mental health and crisis support services. The AIHW has compiled data on the use of mental health services and crisis and support organisations during the COVID-19 pandemic. The most current data are available at MHSA. However, while this approach is useful, it is not a direct measure of the level of psychological distress in
Another way to analyse trends in the level of psychological distress since the onset of the pandemic is to use sample surveys. This approach has been challenging since the onset of COVID-19 due to the fact that face-to-face surveys are very difficult to undertake at this time and pose a potential health and safety risk to interviewers and interviewees. This has led to a number of online surveys being conducted but many of these surveys are not based on probability sampling. In some cases, samples are drawn by inviting all members of the public above a certain age to respond, with unknown response rates. Other samples are drawn from panels where individuals opt-in online. While this sort of approach can provide some useful information, results are unlikely to be representative of the Australian population and therefore cannot be used, even with reweighting, to derive estimates for the Australian population. A major report on online panels for the American Association for Public Opinion Research (AAPOR 2010) noted that:

Researchers should avoid nonprobability online panels when one of the research objectives is to accurately estimate population values. There currently is no generally accepted theoretical basis from which to claim that survey results using samples from nonprobability online panels are projectable to the general population. Thus, claims of “representativeness” should be avoided when using these sample sources. Given the need for representative data, the AIHW collaborated with the Centre for Social Research and Methods at the Australian National University to include questions on loneliness and levels of psychological distress in the ANUPoll surveys, which collect data using the Life in Australia™ Panel. Importantly, this panel uses random probability-based sampling methods and covers both online and offline populations (that is, people who do and do not have access to the internet). In addition, ANUPoll data collected between January 2020 and January 2021 were used to develop a longitudinal dataset. This longitudinal data set enables changes in the experience of an individual to be measured across this period (Biddle 2021a). Data on psychological distress during the COVID-19 pandemic have been collect in April, May, August, October and November 2020, January, April, August and October 2021, January, April, August, October 2022, and January 2023.

Pre COVID–19 snapshot

To understand how COVID-19 may have affected Australians’ levels of psychological distress, it is important to look at data from before the pandemic. It is particularly important to consider any existing trends prior to the pandemic—for example, if psychological distress was generally increasing among Australians in the years before the pandemic.

This is possible using results from the Australian Bureau of Statistics’ National Health Survey (NHS), which is conducted approximately every 3 years. Tables 1 to 3 show the proportion of males, females and people with high or very high levels of psychological distress, as measured by the Kessler 10 Scale, from 2004–05 to 2017–18. While the results vary by age, there is no consistent trend over this period. It is worth noting, however, that young women aged 18-24 generally have higher levels of psychological distress than other age groups. Overall, between 2011-12 to 2017-18 there appears to have been small increases in the proportion of both males and females with high or very high levels of psychological distress.

The National Drug Strategy Household Survey (NDSHS) also showed an increase in the proportion of people reporting high or very high levels of psychological distress; from 10% in 2010 to 14% in 2019 (AIHW 2020).

### Table 1: Proportion of persons with high/very high psychological distress, by age group and year

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<th>18-24</th>
<th>25-34</th>
<th>35-44</th>
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</table>

Source: ABS 4364.0.55.001 - National Health Survey

### Table 2: Proportion of males with high/very high psychological distress, by age group and year

<table>
<thead>
<tr>
<th>Year</th>
<th>18-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65-74</th>
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<tr>
<td>2004-05</td>
<td>12.4</td>
<td>9.3</td>
<td>11.4</td>
<td>11.0</td>
<td>11.3</td>
<td>9.8</td>
<td>10.8</td>
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<tr>
<td>2007-08</td>
<td>6.5</td>
<td>10.9</td>
<td>8.8</td>
<td>11.1</td>
<td>11.6</td>
<td>7.4</td>
<td>8.8</td>
<td>9.6</td>
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<tr>
<td>2011-12</td>
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<td>8.2</td>
<td>9.1</td>
<td>8.9</td>
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</tr>
<tr>
<td>2017-18</td>
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<td>10.3</td>
<td>13.2</td>
<td>12.1</td>
<td>10.0</td>
<td>7.5</td>
<td>11.3</td>
</tr>
</tbody>
</table>

Source: ABS 4364.0.55.001 - National Health Survey
Table 3: Proportion of females with high/very high psychological distress, by age group and year

<table>
<thead>
<tr>
<th></th>
<th>18-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65-74</th>
<th>75+</th>
<th>Total</th>
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<td>2011-12</td>
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<td>13.7</td>
<td>15.3</td>
<td>16.9</td>
<td>11.3</td>
<td>9.7</td>
<td>14.5</td>
</tr>
</tbody>
</table>

Source: ABS 4364.0.55.001 - National Health Survey

Psychological distress during COVID-19

The Australian Bureau of Statistics’ National Study of Mental Health and Wellbeing, 2020–21 showed that 15% of Australians aged 16–85 experienced high or very high levels of psychological distress as measured by the Kessler 10 scale in 2020–21 (ABS 2022b). However, being from a different survey, these results are not directly comparable with the pre-COVID-19 results from the NHS or NDSHS.

The ANUpoll collected data on psychological distress using the K6 scale prior to and during the COVID-19 pandemic. Data were collected from 2,500 respondents in 2017 (February). Data were collected from over 3,000 respondents for each of the ANUpoll’s administered during 2020 (April, August, October and November), 2021 (January, April, August and October), 2022 (January, April, August and October), and 2023 January.

Prevalence of ‘severe’ psychological distress from 2020 to 2023

The K6 scale can be used to categorise those survey respondents experiencing ‘severe’ psychological distress, consistent with having a ‘probable serious mental illness’ according to their K6 score (Prochaska et al. 2012). Figure 1, below, shows the proportion of people experiencing severe psychological distress for each of wave of the ANUpoll during the COVID-19 pandemic as well as prior to the pandemic in February 2017.

Results of the surveys show that the proportion of the population experiencing severe psychological distress rose from 8.4% (of people aged 18+) in February 2017 to 10.6% in April 2020 (Biddle et al. 2020b) with a subsequent fall to 9.7% in May 2020 followed by an increase to 10.9% in October 2020, and a substantial decrease to 9.4% in January 2021 (Biddle & Gray 2021b). The proportion of people experiencing severe psychological distress in August 2021 (10.1%) was similar to April 2021 (9.7%) and continued to be significantly higher than in February 2017 (8.4%) (Biddle et al. 2021c). Between August and October 2021, there was a large and statistically significant increase in the proportion of Australians experiencing severe psychological distress from 10.1% to 12.5%. At 12.5% in October this proportion was at its highest level recorded since the onset of the COVID-19 pandemic (Biddle et al. 2021d). The proportion of people experiencing severe psychological distress declined to 11.0% in January 2022, increased slightly to 11.6% in April 2022 (Biddle 2022a,b), before declining again in August 2022 to 9.7%. (Biddle, McAllister and Sheppard 2022). The proportion of Australians experiencing severe psychological distress again increased to 10.8% in October 2022 (Biddle 2022c). In January 2023, 10.9% of Australian’s experienced severe psychological distress (Biddle & Gray 2023).

While the percentage changes in the proportion of Australians experiencing severe psychological distress between 2020 and January 2023 may appear to be small, a change of 1% point represents a change in the experience of approximately 200,000 people. This calculation is based on the June 2021 estimated resident adult Australian population of about 20,000,000 people (ABS 2022c).

Figure 1: Proportion of Australians aged 18 years and over experiencing severe psychological distress, by survey month from February 2017 to January 2023
Average psychological distress (K6 score) in 2020, 2021 and 2022

Another way of analysing trends in psychological distress is to look at how the average K6 score has changed over time. The data show some notable changes in the average level of psychological distress between 2020 and 2023, with marked differences by age and some variation by gender and jurisdiction. The K6 measure of psychological distress used in the analysis prepared by the ANU has been constructed to have a minimum value of 6 and a maximum value of 30 (Biddle et al. 2020c). Higher scores indicate higher average levels of distress. People with a sum of 11-18 out of a possible maximum of 30 are categorised as experiencing ‘moderate’ psychological distress. This group can be considered to be struggling with mental distress worthy of mental health support but are not at risk of clinical levels of mental health problems (Prochaska et al. 2012). Those with a K6 sum of 19 or higher out of a possible maximum of 30 are categorised as experiencing ‘severe’ psychological distress consistent with having a ‘probable serious mental illness’.

In February 2017, the average K6 score was 11.2. In April 2020, it increased to 11.9. Between April and May 2020 there was a significant reduction in psychological distress (to an average score of 11.5); however, the score remained above the pre-COVID-19 level of February 2017. The average score rose from 11.5 in May 2020 to 11.7 in August 2020 but showed very little change from August to October 2020 (11.8) (Biddle & Gray 2020). This was followed by a large and statistically significant fall in the average K6 score from October to November 2020 (11.4) (Biddle et al. 2020e). While the average score in November 2020 was quite a bit lower than it was in April 2020 it was higher than it was prior to the onset of COVID-19 in February 2017.

From November 2020 to January 2021, the average K6 score fell from 11.4 to 11.2 and continued to decline to 11.1 in April 2021 (Biddle & Gray 2021b). In August 2021, following the most recent outbreak of COVID-19, the average K6 score increased (worsened) to 11.3 but remained lower than scores recorded in April to October 2020. The increase in psychological distress between April and August 2021 was greater for women than men (after controlling for levels of psychological distress in April 2021). Also, after controlling for other factors, women had higher levels of psychological distress in August 2021 compared with men (Biddle & Gray 2021c).

The average level of psychological distress in August 2021 (11.3) was not significantly different to the pre-pandemic level (11.2) observed in February 2017 (Biddle & Gray 2021c). In other words, the average level of psychological distress had returned to pre-pandemic levels. That said, however, there were differences by age (Figure 3).

Between August and October 2021, the average level of psychological distress increased significantly from 11.3 to 11.7 but remained lower than the peaks April and October 2020 (11.9 and 11.8, respectively) (Biddle & Gray 2021d). The worsening of psychological distress between August and October 2021 was due to increases among people aged 18 to 44 years and 75 years and older (Figure2). Between October 2021 and January 2022, there was a slight but not statistically significant decline in average psychological distress from 11.7 to 11.6 (Biddle & Gray 2022). Average psychological distress remained at 11.6 in April 2022 (Biddle 2022b). There may have then been a small decline in average psychological distress to 11.3 during August 2022 (Biddle, McAllister and Sheppard 2022). Average psychological distress remained stable at 11.3 in October 2022 and January 2023 (Biddle 2022c; Biddle & Gray 2023). Since August 2022, average psychological distress has no longer been significantly higher than the pre-COVID-19 level of February 2017 (Biddle & Gray 2023).

Figure 2: Average psychological distress of Australians aged 18 years, by survey month from February 2017 to January 2023

Psychological distress by age

Figure 3 shows average K6 scores by age groups. The chart shows a clear gradient with younger people experiencing higher average levels of psychological distress than people in older age groups (Biddle et al. 2020c; Biddle & Gray 2020; Biddle & Gray 2021a,b,c,d). The chart also shows a distinct pattern over time. For younger people (18-44), average levels of psychological distress were higher in 2020, 2021 and January and April 2022 than they were before the pandemic, especially for those aged 18-24. Those aged 45 and above experienced either little change or improvements in their level of psychological distress over the same period. As an example, the average levels of psychological distress among those aged 18-24, 25-34 and 35-44 were significantly higher in April 2020 than in February 2017 (Biddle et al. 2020c). However, it is worth noting there were improvements during the course of 2020. For example, the level of psychological distress
among those aged 18–24 showed a significant improvement from October to November 2020 (Biddle et al. 2020e). Furthermore, average levels of distress for people within the younger age groups (18–24, 25–34 and 35–44 years) appear to have either lowered or remained relatively stable between April 2022 and January 2023 (Biddle 2022c; Biddle & Gray 2023; Biddle, McAllister and Sheppard 2022).

Figure 3: K6 measure of psychological distress, by age group and selected survey months from February 2017 to January 2023

This figure shows the average K-6 measure of psychological distress by age group for February 2017, April 2020, October 2021 and April 2022. For young Australians (18 to 24 years old in particular, but also all those aged under 45), there was a worsening in psychological distress between February 2017 and April 2020. Although there were improvements in psychological distress in these age groups, psychological distress remained higher in October 2021 and April 2022 than it was in February 2017. For those aged 55 years and over, average levels of psychological distress were slightly lower in April 2022 than in February 2017.

Demographic factors associated with psychological distress during the COVID-19 pandemic

An advantage of the ANUpoll data is that longitudinal data are available for a proportion of respondents and therefore, the impacts of the COVID-19 pandemic and associated factors can be measured in the same respondents over time. Biddle et al. constructed a statistical (regression) model to investigate the possible impacts of the COVID-19 pandemic on psychological distress, as measured by the K6, from April 2020 to April 2022 (Biddle et al. 2022). The model also included measures of mental health, other than the K6, from the February 2020 ANUpoll to control for pre-pandemic levels of psychological distress. It was necessary to use other mental health measures because, prior to April 2020, the most recent ANUpoll to include the K6 was conducted in April 2017 and the remaining longitudinal sample from this time is insufficient as a baseline for the present regression analysis. The analysis showed that over the experience of the pandemic between April 2020 and April 2022 (Biddle et al. 2022):

- females had significantly higher levels of psychological distress than males
- Aboriginal and Torres Strait Islander Australians had higher levels of psychological distress than non-Indigenous Australians, although the difference was not statistically significant
- Victorians had higher levels of psychological distress than residents of New South Wales (the base case).
- household income was associated with psychological distress, with higher levels of psychological distress experienced by those living in lower income households.

What contributed to increased levels of psychological distress?

The heightened level of psychological distress in April 2020 coincided with the first wave of COVID-19 infections in Australia and the initial lockdown period, while the improvement from April to May 2020 coincided with the loosening of restrictions. The increase in the level of psychological distress between May and August 2020 coincided with the second wave of COVID-19 in Victoria and the associated lockdown - with much of the worsening in the average K6 score over this period reflecting changes in Victoria (Biddle & Gray 2020).

To test whether outcomes worsened in Victoria relative to the rest of the country after the reintroduction of lockdowns in July 2020, Biddle et al. conducted a difference-in-difference analysis using linked data for May and August (that is, data across these months for the same people) (Biddle et al. 2020d). This showed a significant worsening in Victoria relative to the rest of the country on several outcomes.
including: psychological distress, loneliness, life satisfaction, satisfaction with direction of country, likely to be infected by COVID-19 and hours worked). On the other hand, the decrease in levels of psychological distress from October to November 2020 coincided with improvements in Victoria. According to Biddle et al. (2020e):

There has also been a continued convergence in psychological distress between Victoria and the rest of Australia. In October 2020, just as lockdown conditions had started to be eased, psychological distress in Victoria was more than 1-point higher in Victoria compared to the rest of Australia (12.67 compared to 11.52). By November 2020, however, this difference had declined to less than half of one point - 11.73 compared to 11.32.

In 2021, the worsening of psychological distress between April and August was greater for residents of Sydney and Melbourne, than those living in the rest of Australia (Biddle & Gray 2021c). The increase in psychological distress from August to October did not show a clear geographic pattern.

To investigate the factors that appeared to be contributing to the rises in psychological distress Biddle et al. undertook regression modelling of the ANUpoll longitudinal subset (Biddle et al. 2020c). Modelling of ANUpoll data collected from the same respondents in February 2017, April 2020 and May 2020 showed that the strongest predictor of psychological distress (K6 score) was ‘increased (worsened) stress’ (this is not surprising as stress is a key predictor of poor mental health outcomes) (Biddle et al. 2020c). ‘Increased loneliness’ was also a strong predictor of K6 scores even when other factors like changes in employment status were controlled for. This suggests that increased loneliness during the pandemic is of concern and that increases in psychological distress are not only being driven by job loss.

Job loss itself was a predictor of K6 scores in the modelling (Biddle et al. 2020c). Controlling for other factors, people who were employed in February 2020 but not in May 2020 had higher levels of psychological distress than those who were employed. In all the models, those living outside capital cities had lower rates of psychological distress than those living in capital cities, after controlling for other factors (Biddle et al. 2020c). This is probably a reflection of the fact that infection rates and the economic impacts of lockdowns have been higher in major cities than they have been in regional or remote areas.

After controlling for factors such as ‘relationships worsening’, ‘increased stress’ and ‘loss of employment’, there was no significant difference in K6 scores between young people (18-24) and older people. This suggests that these factors were the drivers of higher levels of psychological distress among young people.

One final point worth noting is that in the regression analysis of K6 scores, previous K6 scores in February 2017 had a significant predictive effect on K6 scores for May 2020 (Biddle et al. 2020c). This shows that people who are already experiencing high levels of psychological distress can be particularly vulnerable when the situation worsens.

As the COVID-19 pandemic continues, it becomes less clear whether pandemic related factors or other socioeconomic factors may be primarily responsible for any community level change in psychological distress. In the August and October 2022 and January 2023 ANUpolls, respondents were asked whether they ‘felt anxious or worried for the safety of yourself, close family members or friends, due to COVID-19’. Responses to this question provide some information as to whether distress experienced is related to the COVID-19 pandemic or to other factors. In August 2022, 48.3% of respondents reported feeling anxious or worried due to COVID-19. In October 2022, this dropped to 29.8% of respondents, and in January 2023 34.3% of respondents reported feeling anxious or worried due to COVID-19 (Biddle 2022c; Biddle & Gray 2023; Biddle, McAllister and Sheppard 2022).

Loneliness
The ANUpoll also asked respondents whether ‘In the past week, how often have you felt lonely?’ Analysis summarised in Biddle et al. (2020c) shows that those who experienced loneliness had higher rates of psychological distress than those who did not.

Between April 2020 and May 2020, there was a significant decline in experiences of loneliness overall, with 36.1% of the sample saying that they experienced loneliness at least some of the time in May 2020, compared with 45.8% in April 2020 (Biddle et al. 2020c). Declines in loneliness were consistent by age and sex, with the exception of young people (aged 18-24) who did not have a statistically significant reduction in the level of loneliness from April to May 2020—despite the fact that they had the highest proportion of respondents saying that they felt lonely at least some of the time in April 2020 (63.3%) (Biddle et al. 2020c).

There was a rise in reported loneliness from 36.1% in May 2020 to 40.5% in August 2020 (Biddle et al. 2020d). However, this rise only occurred in Victoria where the proportion of the population who were lonely at least some of the time increased from 35.7% in May 2020 to 44.5% in August 2020; in ‘the other seven States and Territories, there was no significant difference between loneliness in May 2020 (37.1%) and August 2020 (38.8%)’ (Biddle et al. 2020d). The increase in loneliness from May 2020 to August 2020 in Victoria coincided with the lockdown associated with the second wave of COVID-19 infections.

Females were more likely to report experiencing loneliness than males (44.8% of females compared with 35.7% of males in August 2020). The proportion of young people aged 18-24 years who were experiencing loneliness in August 2020 was also higher than for other age groups (Biddle et al. 2020d).

The proportion of Australians who said that they had experienced loneliness at least some of the time declined from 40.5% in August 2020 to 35.2% in November 2020 (Biddle et al. 2020e). This is the lowest value observed over the pandemic period so far. In addition, according to Biddle et al (2020e):

There has been a very large decline in the proportion of Australians who said that they ‘never met socially with friends, relatives or work colleagues’ since the early days of the pandemic. In April 2020, 49.4% of Australians said they ‘never met socially’. This declined to 26.5% by May 2020, and even further to 6.8% in November 2020. While this is a dramatic change over a reasonably short period of time, the level
of social isolation in November 2020 is still above the pre-pandemic level of 2.0 per cent [recorded in February 2020]. The proportion of Australians who said that they had experienced loneliness at least some of the time remained consistent from November 2020 (35.2%) to January 2021 (36.1%) and April 2021 (35.5%) and increased slightly in August 2021 (37.6%) (Biddle & Gray 2021a & c). However, the increase in loneliness in August 2021 was mainly due to a large increase in Sydney, with the proportion of Sydney residents experiencing loneliness at least some of the time increasing from 35.3% in April 2021 to 44.3% in August 2021, while the rest of Australia reported little change in this period (34.6% in August 2021 compared with 34.0% in April 2021). At the time of the August 2021 survey, Sydney had been in lockdown for the longest amount of time during the COVID-19 Delta strain outbreak. The proportion of Australians who said that they had experienced loneliness at least some of the time increased in October 2021(39.2%) (Biddle 2021b) and then decreased in January 2022 (38.2%) and April 2022 (36.5%) (Biddle 2022a,b) but remained above the lows from November 2020 to April 2021.

Loneliness has a clear impact on levels of psychological distress and life satisfaction. In a regression analysis of data from the November 2020 ANUpoll (that controlled for psychological distress in April 2020) those who felt lonely ‘some’, ‘occasionall’ or ‘most’ of the time all had significantly higher levels of psychological distress than others (Biddle et al 2020e). This suggests that reductions in loneliness may contribute to reductions in levels of psychological distress. Similar results are evident for life satisfaction in April 2020, people who reported feeling lonely at least some of the time had significantly lower levels of life satisfaction than others.

As with average levels of psychological distress over the pandemic period, loneliness also differed by population group. Biddle et al. calculated an average loneliness score across the 10 ANUpoll survey waves from April 2020 to April 2022 (Biddle et al. 2022). Regression analysis was then undertaken to examine the factors associated with average loneliness over the pandemic period and differences between population groups. The regression model included a measure of social interaction from the February 2020 ANUpoll to control for pre-pandemic loneliness. The results of the model showed that during the pandemic period (Biddle et al. 2022):

- females were slightly more likely to experience loneliness than males, although the difference was not statistically significant
- respondents aged 45 and over had substantially lower levels of loneliness than those aged under 45
- those in the lowest income households had the highest levels of loneliness, compared with those in higher income households
- Victorians seemed to experience similar levels of loneliness as residents of New South Wales and South Australians experienced lower levels of loneliness compared with New South Wales (the base case)

The most recent ANUpolls show that the proportion of Australians’ who were lonely at least some of the time during August 2022, October 2022, and January 2023 was 35.6%, 35.9%, and 35.4% respectively (Biddle 2022c; Biddle & Gray 2023; Biddle, McAllister and Sheppard 2022).

Life satisfaction

Another way of tracking wellbeing is to analyse changes in life satisfaction. In the ANUpoll surveys life satisfaction is measured on a scale of 1 to 10, with higher scores indicating higher levels of satisfaction. Average life satisfaction scores fell substantially during the early stages of the pandemic from 6.9 in January 2020 to 6.5 in April 2020, before rising to 6.8 in May 2020 as infection rates fell and lockdown conditions started to be eased (Biddle et al. 2020d). The average level of satisfaction then fell to 6.6 in August 2020. However, between October and November 2020, life satisfaction improved substantially from an average score of 6.7 to 7.0. The average life satisfaction score was no longer significantly different to that recorded in October 2019 (7.1), and was slightly higher than that recorded during the Black Summer Bushfire crisis (6.9 in January 2020) (Biddle et al. 2020e).

Although the overall level of life satisfaction in November 2020 had returned to pre-pandemic levels (October 2019) there was a substantial reduction in life satisfaction scores during 2020. A regression analysis conducted in November 2020 using the longitudinal nature of the ANUpoll data, suggested that after controlling for the level of life satisfaction in January 2020, the total loss of life satisfaction over 2020 was:

- significantly higher for people living in Victoria compared with the rest of the Australian population
- lower for those aged 55 years and over compared with those aged 35-44
- lower for those who living outside the capital cities (Biddle et al. 2020e).

This is consistent with what you would expect given the greater impact of, among other things, lockdowns (through, for example, their impact on employment) for younger people, people in Victoria and people living in capital cities.

Nationally, the average life satisfaction score showed little change from November 2020 (7.0) to January 2021 (7.0), and then declined slightly to 6.9 in April 2021, although the difference was not statistically significant (Biddle & Gray 2021a,b).

In August 2021, the average life satisfaction score in Australia decreased substantially to 6.5, to a level similar to that reported in April 2020 at the peak of the first wave of COVID-19 in Australia and was lower than all other time points measured by ANUpoll (Biddle & Gray 2021c). In order to demonstrate the magnitude of the decline in life satisfaction between April and August 2021, Biddle & Gray (2021c) converted the decline into income equivalents, based on the relationship between life satisfaction and household income prior to the pandemic. This model estimated that the decrease in life satisfaction reported between April and August 2021 was equivalent to a loss of $827 in average weekly household income (Biddle & Gray 2021c).

There was a slight increase in life satisfaction between August 2021 and October 2021, from 6.5 to 6.6. The October ANUPoll was conducted in mid-October when COVID-19 restrictions were beginning to be lifted. Life satisfaction remained at 6.6 in January 2022 and increased slightly to 6.7 in April 2022, still lower than the levels observed pre-pandemic and from November 2020 to April 2021 (Biddle 2022a,b, Biddle & Gray 2021d). Unlike psychological distress and loneliness, life satisfaction was included in the January 2020 ANUpoll, which can be used as a pre-pandemic baseline. Average life satisfaction over the pandemic period has mostly been lower than before the pandemic in January
2020 (noting that life satisfaction was lower in January 2020 when bushfires were affecting large parts of Eastern Australia than it was in October 2019) (Biddle et al. 2022). Biddle et al. calculated average loss of life satisfaction during the pandemic period for respondents to the April 2022 ANUpoll, using the January 2020 ANUpoll as the baseline and data from the ANUpoll surveys conducted between April 2020 and April 2022 (Biddle et al. 2022). The calculation assumes that had the COVID-19 pandemic not occurred, life satisfaction would have remained at January 2020 levels. The average level of ‘lost life satisfaction’ due to the pandemic for respondents to the April 2022 ANUpoll was 0.216, which when converted to income equivalents was roughly equivalent to a halving in income (Biddle et al. 2022).

The impact of the pandemic on life satisfaction differed by age, with the greatest declines among those aged 18 to 24 years, moderate declines for those aged 25 to 54, no significant declines for those aged 55 and over and slight increases for those aged 75 and over (Biddle et al. 2022).

Regression modelling was used to estimate the association between other demographic variables and loss of life satisfaction due to the pandemic. In this model, greater declines in life satisfaction were observed in respondents who had not completed year 12 compared with those who had as well as Victorians compared with residents of New South Wales. Respondents in the 4th and 5th income quintiles (the two highest income groups) had the smallest loss in life satisfaction, compared with other income quintiles (Biddle et al. 2022).

The most recent ANUpolls show that average Australian life satisfaction during August 2022, October 2022, and January 2023 was 6.8, 6.7, and 6.8 respectively (Biddle 2022c; Biddle & Gray 2023; Biddle, McAllister and Sheppard 2022). While life satisfaction has steadily increased since August 2021, it remains lower than November 2020 and pre-COVID-19 during October 2019 (p6., Biddle & Gray 2023).

Data on deaths by suicide

There has been considerable commentary since the start of the pandemic on its potential to impact on the incidence of deaths by suicide. Much of this commentary has been based on modelling using previous experience including the relationship between unemployment and deaths by suicide. However, evidence to-date does not indicate an increase in suicide deaths in Australia during the pandemic. National mortality data published by the Australian Bureau of Statistics show that the rate of death by suicide in Australia was lower in 2020 (12.1 per 100,000 population) and 2021 (12.0) than in 2019 (13.1), see Deaths by suicide over time (https://www.aihw.gov.au/suicide-self-harm/mln/mortality/probabilities-deaths-by-suicide). That said, Australian Bureau of Statistics coding of psychosocial risk factors associated with deaths by suicide in 2020 determined that 3.2% of these deaths had the pandemic mentioned in either a police or pathology report or a coronial finding. In 2021, the percentage of suicide deaths where the pandemic was mentioned decreased to 2.6%. In most of these cases, other risk factors for suicide were also present. In 2021, the pandemic appeared to impact on people in different ways, including through job loss and financial insecurity as well as general concern or anxiety about societal changes or contacting the virus (ABS 2022a). For more information, visit Psychosocial risk factors and deaths by suicide.

Internationally, a ‘living systematic review’ (John et al. 2021) based on evidence until 19 October 2020, has concluded that:

There was no consistent evidence of a rise in suicide but many studies noted adverse economic effects were evolving. There was evidence of a rise in community distress, fall in hospital presentation for suicidal behaviour and early evidence of an increased frequency of suicidal thoughts in those who had become infected with COVID-19. This living review provides a regular synthesis of the most up-to-date research evidence to guide public health and clinical policy to mitigate the impact of COVID-19 on suicide risk as the longer term impacts of the pandemic on suicide risk are researched. A study investigating trends in suicide deaths between January 2017 and August 2020, using data from the Queensland, New South Wales, and Victorian suicide registers concluded that (Clapperton et al., 2021):

Although our analysis found no evidence of an overall increase in suicides after the pandemic began, the picture is complex. The identified increase in suicide in young men indicates that the impact of the pandemic is likely unevenly distributed across populations. The increase in suicides in the context of unemployment reinforces the vital need for mitigation measures during COVID-19, and for ongoing monitoring of suicide as the pandemic continues. Since 2020, suicide registers in Victoria and New South Wales have regularly published data on suspected deaths by suicide for 2019, 2020 and 2021. The Suicide in Queensland: Annual Report 2022 (Leske et al. 2022) included data on suspected deaths by suicide from the interim Queensland Suicide Register (IQR) from 2019 to 2021. The number of suspected deaths by suicide recorded in suicide registers fluctuates from year to year and, while there have been increases and decreases in some jurisdictions in 2020 and 2021 compared with 2019, there is no evidence to-date that the pandemic has affected suicide rates. For more information see Suspected deaths by suicide.

While the pandemic does not appear to have affected suicide rates in Queensland compared with previous reports, examination of police reports by the IQR indicates that between 29 January 2020 and 31 December 2021 COVID-19 appeared to be a contributing factor in 86 of the 1,539 suspected deaths by suicide (5.6%) (Leske et al. 2022).

It is true that some key risk factors associated with deaths by suicide did worsen following the onset of the pandemic. For example, there were considerable job losses and rises in the level of psychological distress. On the other hand, it is possible that a general sense of ‘we are all in this together’ could have a protective impact. From February to April 2020 there were rises in the level of trust in others and in governments in Australia (Biddle et al. 2020a). In addition, the vast majority of people who experience unemployment or high levels of psychological distress or mental health issues will never experience a suicide attempt. That said, it is very important to monitor trends in risk factors and trends in deaths by suicide in real time.

A study undertaken by Leske et al (2021) used Queensland Suicide Register data to compare rates of suspected suicide before the COVID-19 pandemic (2015-2019) to rates of suspected suicide during the earlier months of the pandemic (February 2020-August 2020). Leske et al. (2021) found there was no overall change in the rates of suspected suicide during the first seven months of the pandemic in Queensland. Nonetheless, that COVID-19 had been a contributing factor for some individual suspected suicide deaths that occurred during the period.
Another factor that should be considered is the impact of both JobKeeper and the JobSeeker supplement. This is important given the association between the risk of dying by suicide and socioeconomic outcomes. Modelling undertaken by the ANU suggests that not only were levels of poverty and housing stress lower than they otherwise would have been as a result of these payments, they were also lower than they were prior to the spread of COVID-19 (Philips et al. 2020). Households who mainly relied on the JobSeeker payment prior to the pandemic and the introduction of the JobSeeker supplement saw their poverty rate fall from 67% prior to COVID-19 to 6.8% (Phillips et al. 2020). On a similar note Biddle et al. (2020d) found that real incomes actually rose for those in the bottom decile of the income distribution from February to August 2020. Using data from the Taking the Pulse of the Nation Survey, Botha et al. (2020) have shown that the level of psychological distress among the unemployed declined after May 2020. The ANU modelling suggests that the protective impact of JobKeeper and the JobSeeker supplement on housing stress and poverty were reduced somewhat by the changes to these payments announced in July 2020 (Phillips et al. 2020).

Ambulance attendances

A key part of the National Suicide and Self-harm Monitoring Project is the compilation and coding of data from ambulance attendances. The National Ambulance Surveillance System (NASS), established in 2020, provides data on ambulance attendances for suicidal and self-harm behaviours for New South Wales, Victoria, Queensland, Tasmania and the Australian Capital Territory. The NASS is a partnership between Turning Point, Monash University and jurisdictional ambulance services across Australia. Comprehensive data from the NASS are reported in Ambulance attendances: suicidal and self-harm behaviours.

In 2020, prior to the establishment of the NASS, the AIHW requested Turning Point prioritise the coding of data for Victoria. Victoria was chosen as monthly data on ambulance attendances were already being compiled for the Victorian Government and there were concerns about the impact of the Melbourne lockdown on suicide and self-harm behaviours.

Monthly data on the number of ambulance attendances related to suicide attempts in Victoria from 2018 to 2020 are shown in Figure 4. As the figure shows, there is no clear difference from 2018 to 2020. The total number of ambulance attendances related to suicide attempts in Victoria in 2020 was 4% lower than in 2019 but 8% higher than in 2018.

In 2020, there was an 11% increase in the total number of ambulance attendances in Victoria relating to suicidal ideation (thinking about suicide), compared with 2019, with the increase more pronounced in the second half of 2020. There was also an increase in the total number of mental health attendances (16% higher in 2020 than in 2019). This is consistent with the overall greater use of mental health services in 2020 that is evident in other data. This highlights the fact that greater use of, and need for, mental health services does not necessarily equate to trends in the number of suicide attempts. The vast bulk of people who use mental health services will never have a suicide attempt but timely access to mental health services may reduce the number of deaths by suicide. The total number of ambulance attendances for self-injury in Victoria in 2020 was considerably higher (33%) than in 2019. This highlights the fact that self-injury and suicide attempts are not the same thing.

Figure 4: Monthly ambulance attendances for suicide attempts, Victoria, 2018 to 2020

References


Suicide & self-harm monitoring: Geography

Reporting deaths by suicide and hospitalisations for intentional self-harm at smaller, more ‘localised’ geographical areas, can reveal information that may be masked by reporting for the whole of Australia or by states and territories—allowing for a better understanding of suicidal behaviours for local communities, policymakers and researchers.

Although suicide has a significant impact on the community, it is a relatively rare cause of death in Australia meaning that depending on the level of geography considered, there may be areas where there are very few—or even no—deaths by suicide recorded in a given year. The number of hospitalisations for intentional self-harm are approximately 10 times that of deaths by suicide; however, further disaggregation (or breakdown) of the data by age or sex reduces the numbers of events able to be reported for each group in each small geographical area in a single year. Strict privacy and confidentiality controls or concerns regarding statistical reliability mean that small numbers (or rates based on them) cannot be publicly reported, thereby reducing the coverage of reportable data as smaller geographical areas are considered.

Numbers and age-standardised rates (where they could be reliably calculated) of deaths by suicide and hospitalisations for intentional self-harm have been reported by PHN area and Statistical Areas level 3 and 4. For the reporting of suicide and hospitalised intentional self-harm data by Statistical Area, the smallest possible geographical area has been used while still allowing for maximum coverage of reportable data across these small geographical areas.

This section also contains global statistics on suicide—intended to provide a broad view of the issue across the world.
Deaths by suicide by remoteness areas

About 28% of the Australian population live in regional and remote areas—areas outside Australia’s major cities. There are many positive aspects about living in regional and remote areas, including higher levels of life satisfaction compared with those in urban areas (Wilkins 2015), increased community interconnectedness and social cohesion, and higher levels of community participation, volunteering and informal support from their communities (Ziersch et al. 2009). However, Australians living in these areas face unique challenges due to their geographic isolation, and often have poorer health and welfare outcomes than those living in major cities.

For further information on how the statistics reported here were calculated see Technical notes.

Suicide deaths by remoteness area, Australia, 2010 to 2021.

The line graph shows the age-standardised rates of suicide for Very Remote, Remote, Outer Regional and Inner Regional areas and Major Cities from 2010 to 2021. Users can also choose to view age-standardised rates and numbers of deaths by suicide for remoteness areas by sex.

Are people in regional and remote areas at greater risk of deaths by suicide?

From 2010 to 2021:
numbers of deaths by suicide were highest in Major Cities and fell as remoteness increased, while age-standardised suicide rates tended to increase with the increasing remoteness.

Suicide rates for residents of Major Cities were the lowest of all 5 remoteness areas each year and remained relatively stable over the period (ranging from 9.5 deaths per 100,000 population in 2011 to 11.7 in 2017).

Suicide rates in Very Remote areas generally increased from 22.2 deaths per 100,000 population in 2010 to 30.2 in 2019, falling to 23.9 in 2021. Fluctuations in rates are due largely to the small population and small numbers of deaths by suicide in these areas.

Suicide rates for residents of Inner Regional, Outer Regional and Remote areas also fluctuated over the period from 12.6, 14.4 and 17.5 deaths per 100,000 population to 15.9, 18.5 and 21.2, respectively.

The greatest proportion of deaths by suicide occurred in Major Cities and remained relatively stable at 61-65% over the period.

In 2021:

- The age-standardised suicide rate for residents of Major Cities (10.0 deaths per 100,000 population) was lower than the national rate of 12.0 deaths per 100,000 population.
- Rates for residents of all other remoteness areas were above the national rate.
- The rate for residents of Very Remote areas (23.9 deaths per 100,000 population) was 2.3 times that of the rate for residents of Major Cities (10.0 deaths per 100,000 population); however, numbers of deaths were small (43 deaths in Very Remote areas and 1,900 in Major Cities).
- The proportion of deaths by suicide occurring in Major Cities in 2021 was 61%.

References


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Intentional self-harm hospitalisations by remoteness areas

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the Technical notes.

Understanding the geographical distribution of hospitalisations due to intentional self-harm based on patients’ area of usual residence (see Technical notes for more information) can help target suicide prevention activities to areas in need.


The line graph shows age-specific rates of intentional self-harm hospitalisations for Very Remote, Remote, Outer Regional, Inner Regional, Major Cities and Total remoteness areas for all ages combined from 2012–13 to 2020–21. Users can also choose to view age-specific rate, numbers and proportion of hospitalisations for intentional self-harm by remoteness area and specific age groups. Between 2012–13 to 2020–21, rates for all ages were highest for residents of Very Remote areas, except for 2017–18, when the highest rate was for residents of Remote areas. Residents of Major Cities recorded the lowest rates of intentional self-harm hospitalisations during this period.

Are people in regional and remote areas at greater risk of intentional self-harm hospitalisations?

In 2020–21:
residents of Very Remote areas recorded a rate of 178 hospitalisations per 100,000 population, compared to that of residents in Major cities (107 per 100,000 population) which recorded the lowest rate.

- two-thirds of intentional self-harm hospitalisations were residents of Major cities (66%)
- young people aged 15-19 had the highest rates of intentional self-harm hospitalisations in each remoteness area except Very Remote where those aged 20-24 years old had the highest rate
- the highest rate of intentional self-harm hospitalisations overall was in the 15-19 age group in Remote areas (724 hospitalisations per 100,000 population), followed by the same age group in Outer Regional areas (542 per 100,000 population).

A similar pattern was seen with deaths by suicide as age-standardised suicide rates tended to increase with remoteness of place of residence see Suicide by remoteness areas.

How have rates of intentional self-harm hospitalisations changed for remoteness areas?

Between 2012-13 and 2020-21:

- overall rates of intentional self-harm hospitalisations tended to increase in Very Remote areas (from 172 to 178 hospitalisations per 100,000 population), Remote areas (from 146 to 171 per 100,000 population) and Outer Regional areas (from 136 to 149 per 100,000 population)
- rates fell in Inner Regional areas (from 125 to 120 per 100,000 population), and Major Cities (111 to 107 per 100,000 population) over this period
- the highest increases in rates of intentional self-harm hospitalisations occurred in those aged 15-19 in Remote and Outer Regional areas (from 465 to 724 hospitalisations per 100,000 population and 367 to 542 hospitalisations per 100,000 population respectively) and in 20-24 year olds in Very Remote areas (from 351 to 524 hospitalisations per 100,000).
Suicide & self-harm monitoring

Deaths by suicide, by Primary Health Network areas

Where people live can impact on their risk of suicide and also their access to services. Reporting rates or numbers of deaths by suicide at Primary Health Network (PHN) areas allows for more localised information that may provide a better understanding of the incidence of deaths by suicide in the local community and allow clinicians, policymakers and researchers to better plan services or suicide prevention activities.

PHNs are organisations that connect health services across a specific geographic area (PHN areas). There are 31 PHN areas that cover the whole of Australia with the boundaries defined by the Australian Government Department of Health - external site opens in new window. For further information on how the statistics reported here were calculated see Technical notes.

Suicide deaths by Primary Health Network areas, Australia, 2010 to 2021.

The line graph shows the age-standardised rates of suicide for Australia by Primary Health Network (PHN) area from 2010 to 2021. Users can choose to view age-standardised rates and numbers of deaths by suicide by selected PHN.

How do suicide rates vary among PHN areas?
In 2021:

- age-standardised rates and numbers of deaths by suicide varied across PHN areas, ranging from 6.2 deaths per 100,000 population in Northern Sydney PHN area to 22.1 in the NSW North Coast PHN area
- the greatest number of deaths by suicide occurred in the Hunter New England and Central Coast PHN (181), which has also had the highest number of deaths since 2016.
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Intentional self-harm hospitalisations by PHN areas

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the Technical notes.

The reporting of rates of intentional self-harm hospitalisations by PHN areas can provide localised information to enable PHNs to identify and investigate areas requiring more coordination of care to patients, by working directly with key primary and secondary health care providers and hospitals.

Intentional self-harm hospitalisations, by age and sex, by Primary Health Network areas, Australia, 2020-21.

The distribution plot shows the age-specific rates of intentional self-harm hospitalisations for males and females by all ages and broad age groups (0-24, 25-44, 45-64, 65 and over) for Primary Health Networks (PHNs) in 2020-21. Users can also choose to view horizontal stacked bar charts showing numbers and proportion of intentional self-harm hospitalisations for PHNs by all ages and age groups by sex. Rates for all ages were lowest in the Northern Sydney PHN for males (36.2 per 100,000 population) and South Western Sydney PHN for females (63.5). Rates for all ages were highest in Western Queensland PHN for males (199.7) and for females (363.1).

How do rates of intentional self-harm hospitalisations vary across PHN areas?

The rates of hospitalisations for intentional self-harm in 2020-21 varied greatly by PHN area.
In 2020–21:

- the Western Queensland PHN area had the highest rate (279 hospitalisations per 100,000 population) South Western Sydney PHN area had the lowest rate (52) (Supplementary table National Hospital Morbidity Database NHMD S7)
- the rate per 100,000 population for Australia was 116.

In 2020–21, rates of intentional self-harm hospitalisation for females tended to be highest in those aged 24 and below.

- the highest rate of hospitalisation for intentional self-harm for females aged 24 and below was in the Western Queensland PHN area (583 per 100,000 population; 58 hospitalisations)
- the next highest rate for females aged 24 and below was in the Brisbane North PHN (502 per 100,000 population; 834 hospitalisations).

In 2020–21, rates of intentional self-harm hospitalisation for males tended to be highest in those aged 25–44.

- the Western Queensland PHN area reported the highest rate for males in the 25–44 age group (271 per 100,000 population; 23 hospitalisations) followed by Country SA PHN (269 per 100,000 population; 147 hospitalisations).
Deaths by suicide, by local areas

Suicide incidence data in local communities provide insight into small populations and the variability of suicide rates across Australia. This is particularly pertinent for suicide prevention activities.

Deaths by suicide data have been aggregated (pooled) for four 5-year periods (2014-18, 2015-2019, 2016-2020 and 2017-2021) at the Statistical area level 3 (SA3) to maximise coverage, while still addressing privacy concerns. To allow for further disaggregation by sex, these data are reported at the Statistical area level 4 (SA4).

Direct estimates of suicide rates based on small numbers can be highly variable from year to year. Rates based on 20 or fewer deaths over the 5-year period in each small geographic area have not been reported due to privacy and confidentiality issues and statistical concerns. See Technical notes to ensure the data are interpreted appropriately.

How to use these maps

Use the zoom and search functions to explore the map. Click on an area in the map to view additional information. Change maps by clicking on the folder icon in the top right. The colour shading indicates different rates of deaths by suicide, with darker shades indicating a higher rate.

For the best experience, use Chrome, Edge or Firefox browsers. For more information on browser compatibility, see Supported browsers.

Deaths by suicide by SA3 areas, Australia, 2015-19.

The map shows the crude rate and number of deaths by suicide for persons by all ages for SA3 areas in Australia aggregated over 5 years, 2015-19). Users can also choose to view maps showing crude rates and numbers of deaths by suicide for males and females by SA4 areas.

Over the 5-year period 2015-19, reportable suicide rates in persons at SA3 level were highest in Kimberley in Western Australia (35.4 deaths per 100,000 population) and a number of Queensland regions including Burnett (29.1), Outback - South (27.3), and Tablelands (East) - Kuranda (26.8). Reportable suicide rates were lowest in the SA3 areas of Kogarah - Rockdale and Parramatta (all areas in Sydney, New South Wales) (all about 6 deaths per 100,000 population) and Keilor in Victoria (6.3).
Visualisation not available for printing

Note: Data behind these maps are available on the Data downloads page: National Mortality Database—Suicide (ICD-10 X60-X84, Y87.0).

Over the 5-year period 2017-2021, reportable age-standardised suicide rates in persons at the SA3 level, were:

- highest in the SA3 areas of Daly - Tiwi - West Arnhem in Western Australia (32.3 deaths per 100,000 population) Kimberly in Western Australia (31.9) and Burnett in Queensland (30.4)
- lowest in the SA3 areas of Baulkham Hills and Canterbury (5.5 deaths per 100,000 population), 5.5) and Blacktown - North (5.7) (all areas of Sydney, New South Wales).

Over the same period (2017-2021), reportable suicide rates in males, at the SA4 level, were:

- highest in the SA4 areas of Wide Bay, Queensland (39.2 deaths per 100,000 population), Western Australia - Outback (South) (36.1) and Mandurah - Western Australia (35.8).
- lowest in the SA4 areas of Sydney - Baulkham Hills and Hawkesbury (9.5 deaths for 100,000), Sydney - Inner South West (9.8), Sydney - Parramatta and Sydney - Ryde (9.9) (all New South Wales)

For females, reportable suicide rates over the 5-year period 2017-2021, at the SA4 level, were:

- highest in the SA4 areas of Northern Territory - Outback (15.8 deaths per 100,000 population), Western Australia - Outback (North) (12.8), and Queensland - Outback (11.1)
- lowest in the SA4 areas of Sydney - South West (2.4 deaths per 100,000) and Baulkham Hills, Blacktown and Parramatta (all New South Wales) (3.4).

The AIHW is committed to continually improving the quality, ease-of-use, and timeliness of its products. In this product, we are using a new data visualisation tool to present results by geographical areas using maps. We welcome any feedback on this new presentation and hope that it will provide useful insights into the topic. As this tool is a relatively new addition to our website, we will be continuing to work to enhance its use and would welcome any feedback.
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Intentional self-harm hospitalisations by local areas

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the Technical notes.

The rates of hospitalisations for intentional self-harm in small geographic areas can provide insight into the incidence of intentional self-harm in local communities.

Statistical Areas Level 3 (SA3s) is a type of geographical classification defined by the Australian Bureau of Statistics (ABS) to provide a regional breakdown of Australia. There are 336 geographical areas which cover states and territories excluding SA3s associated with overseas territories and other with boundaries defined by the ABS. Each SA3 generally has a population of between 30,000 and 130,000 people. Allocation to an SA3 for hospitalisation data is based on the patient’s usual place of residence, rather than where they received treatment.

Variations in hospitalisation rates between geographical areas may be due to a range of factors. Crude hospitalisation rates at SA3s should be interpreted with caution as areas with small populations are more sensitive to changes in the number of hospitalisations.

How to use these maps

Use the zoom and search functions to explore the map. Click on an area in the map to view additional information. Change maps by clicking on the tab at the top. The colour shading indicates different rates of intentional self-harm hospitalisations, with darker shades indicating a higher rate.

For the best experience, use Chrome, Edge or Firefox browsers. For more information on browser compatibility, see Supported browsers.

The map shows the crude rate and number of intentional self-harm hospitalisations for females by all ages for SA3 areas in Australia in 2019-20. Users can also choose to view maps showing the same data for males or for persons by broad age groups (0-24, 25-44 and 45 and over). In 2019-20, rates of hospitalisations for intentional self-harm for females ranged from 36 per 100,000 population in Shoalhaven (New South Wales) to 603 in Alice Springs (Northern Territory). For males, rates ranged from 15 hospitalisations per 100,000 population in Parramatta (New South Wales) to 605 in Caboolture Hinterland (Queensland).
Variation across local areas

In 2020–21, rates of hospitalisations for intentional self-harm across the more than 300 SA3s, varied widely.

- for females, rates of hospitalisation ranged from 35 per 100,000 population in Queanbeyan (New South Wales) to 711 in Beenleigh (Queensland).
- for males, rates ranged from 12 hospitalisations per 100,000 population in Strathfield - Burwood - Ashfield (New South Wales) to 738 in Caboolture Hinterland (Queensland).

Rates of intentional self-harm hospitalisations for different age groups also varied widely between SA3s.

- rates of hospitalisations for intentional self-harm for those aged 24 and below ranged from 17 hospitalisations per 100,000 population in Merrylands - Guildford (New South Wales) to 771 in Caboolture Hinterland (Queensland)
- for the 25-44 age group, rates ranged from 28 hospitalisations per 100,000 population in Parramatta (New South Wales) to 1,022 in Caboolture Hinterland (Queensland)
- for those aged 45 and over, rates ranged from 19 hospitalisations per 100,000 population in Ku-ring-gai (New South Wales) to 437 in East Arnhem (Northern Territory).
International estimates of death by intentional self-harm

Global statistics on suicide provide a broad view of the issue across the world and provide a means of evaluation to allow governments, policy makers and researchers to learn from each other to improve suicide prevention planning and decision making. The intent in providing this information is to contribute to an informed, open debate about ways to prevent suicide in Australia—not to create comparisons ranking suicide rates around the world.

These data are estimates based on modelling assumptions from the most recent update to the Global Burden of Disease Study (GBD 2019) and are sourced from the Global Health Data Exchange (GHDx), a data catalogue created and supported by the Institute for Health Metrics and Evaluation (IHME). For further information see [Global Health Data Exchange](http://ghdx.healthdata.org/) and [IHME Global burden of disease](http://www.healthdata.org/gbd/2019).

The interactive data visualisation below allows you to view the most recent data (rates of suicide and years of life lost) from Australia, Organisation for Economic Co-operation and Development (OECD) member countries, G20 nations (19 member nations plus the remaining 24 European Union nations individually represented) and World Health Organization regions. You can view data for any country or region using the ‘multiple values’ selector.


This line graph shows the self-harm measures from 1990–2020, in OECD countries, G20 countries and WHO regions. Users can filter the graph in various ways, including viewing the age-standardised rate or Years of Life Lost (YLL) due to deliberate self-harm, viewing the latest year of data only and filtering by age groups and sex. Users can also compare Australia to OECD countries, G20 countries and WHO regions. Overall, Australia tracks slightly above the averages of OECD countries, G20 countries and WHO regions in 2020. The average age-standardised suicide rate has declined steadily in OECD countries, G20 countries and WHO regions.
Data are presented as deaths or years of life lost due to death by intentional self-harm. The terms self-harm and suicide are used interchangeably. It should be noted that this terminology is different to that used in other sections of the Suicide & self-harm monitoring website, where the term self-harm refers to non-fatal injury rather than death. The ICD-10 codes used here include: X60-X64.9, X66-X84.9, Y87.0 which are slightly different to those reported in other sections of Suicide & self-harm monitoring.

International rates of deaths due to self-harm should be interpreted with caution as the quality of mortality data can vary between countries and there is a lack of consistency in methods of death registration. Also, due to stigma associated with suicide—and the fact that it is illegal in some countries—some countries are likely to underestimate suicide rates and this may bring into question the reliability of suicide-related statistics (particularly in countries with low reported suicide rates).

Overall, there has been a reduction in suicide rates since 1990 driven mostly by declines in Europe and South East Asia. Across other regions, suicide rates have remained relatively stable.

Suicide rates by country

Of OECD nations in 2019, age-standardised suicide rates ranged from 2.8 per 100,000 in Turkey to 23.9 per 100,000 in Lithuania. Australia’s 2019 estimated suicide rate (10.4 per 100,000 population) was in the middle of OECD countries (18 of 36) and was similar to those reported in Canada, Czech Republic, New Zealand, and Sweden. The suicide rates in Austria and the United States were higher at 11.3 and 11.7 per 100,000 of the population respectively. Suicide rates have been rising in the United States prior to 2020 (see Deaths of despair).

Similarly, in comparison with G20 nations in 2019, Australia was 23 of 43 (19 members nations plus remaining 24 European Union nations individually represented).

Suicide is more common in males than females in all countries

Suicide rates for males and females can be explored for any country or region on the interactive visualisations by selecting the drop down options for sex.

In 2019, in OECD countries, rates for males varied from 4.4 per 100,000 in Turkey to 42.2 in Lithuania, while female suicide rates ranged from 1.3 per 100,000 in Greece to 11.8 in the Republic of Korea. Again, Australia was in between with suicide rates of 16.2 per 100,000 for males and 4.8 per 100,000 for females.

Suicide rates by age

Suicide is one of the leading causes of death in young people in Australia; however, this does not necessarily mean suicide is more likely to occur in young people than in older age groups—it is largely a reflection of the fact that older Australians also die from many other causes.
Suicide & self-harm monitoring: Behaviours & risk factors

Risk factors are behaviours or aspects of lifestyle, environmental exposures or inherited characteristics that can interact to influence people’s risk of suicidal behaviours. Therefore, looking at risk factors at a population level can help target assistance.

It is important to remember that the presence of one or more of these risk factors cannot predict or explain suicide or intentional self-harm as each person’s experience is unique. Experiencing any of these risk factors does not necessarily mean a person has—or ever will—attempt suicide, but establishing whether a person has any of these risk factors can help determine whether they are at increased risk. Also, some people will have suicidal thoughts without having a history of any risk factors.

Risk factors and behaviours can be modifiable (change over time; for example, illicit drug use) or non-modifiable (permanent or constant; for example, a personal history of self-harm). They can also be background factors (such as a childhood history of abuse) or recent stressful life events. The presence of these factors and their influence is different from person to person over their lifetime and can vary by sex, culture and other characteristics.

Information on these risk factors in Australians has been obtained from a number of sources by making greater use of existing data sets or by integrating multiple data sets. This includes:

- the presence of psychosocial factors (for example, a past history of self-harm; relationship problems; legal issues; bereavement; unemployment; homelessness; and disability) in deaths by suicide obtained by manual review of reports and coronial findings held by the National Coronial Information System (NCIS) by the Australian Bureau of Statistics.
- the effect of differences in educational attainment and labour force status in deaths by suicide obtained by integrating the ABS Causes of Death data set with that of the Census 2011.
- risk factors associated with suicide and self-inflicted injuries included in the Australian Burden of Disease Study 2015 (to be updated with 2019 data as soon as possible as per the recent AIHW report *The health impact of suicide and self-inflicted injuries in Australia, 2019*).
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Behavioural risk factor burden for suicide and self-inflicted injuries

The National Suicide and Self-harm Monitoring Project provided funding for the AIHW to produce a report on The health impact of suicide and self-inflicted injuries in Australia, 2019. The report estimates the combined impact of people dying prematurely from suicide and the direct health impacts on individuals living with injury due to self-harm. Note that the estimates do not take into consideration the potential mental health issues associated with self-harm or the effects suicide and self-harm can have on people’s families, friends and communities. Through detailed data visualisations the report presents time series data for the Australian population by age, sex and key population groups. The contribution of various modifiable risk factors to disease burden is also estimated.

Data on risk factors associated with suicide and self-inflicted injuries from the Australian Burden of Disease Study 2022 are included below. The full report is available here, - external site opens in new window. According to the AIHW’s Australian Burden of Disease Study 2022, suicide and self-inflicted injuries was the second leading cause of premature death from injury or disease, accounting for an estimated 6% of the total years of life lost in Australia (AIHW, 2022). Moreover, suicide and self-inflicted injuries is the leading cause of premature death in men aged 15-49 years. See Burden of disease for further information.

What is burden of disease?

Burden of disease analysis measures the impact of living with illness and injury and dying prematurely. The method uses the summary measure ‘disability-adjusted life years (or DALY) to measure the years of healthy life lost by combining premature death (years of life lost; YLL) with years lived with disability (YLD). For further information including a more comprehensive explanation of the methodology and data sources used, see Australian Burden of Disease Study: methods and supplementary material 2022. The burden of suicide and self-inflicted injuries due to behavioural risk factors, known as attributable burden, has also been estimated in the Australian Burden of Disease Study. These estimates reflect the amount of burden that could have been avoided if all people in Australia were not exposed to the risk factor.

In 2022, ‘suicide and self-inflicted injuries’ was the second leading cause of fatal burden among all people, with an estimated 159,200 total YLL. Approximately 121,200 YLL were lost to suicide and self-inflicted injuries among men and 38,000 YLL among women. In 2022, suicide and self-inflicted injuries were also the second leading cause of fatal burden among men and the ninth leading cause of fatal burden among women (down from eighth in 2018).

The interactive data visualisation shows the leading causes for years of life lost (YLL) based on leading causes of mortality in Australia. Sex (females, males, persons) and data year can be selected for viewing. Highlighted in purple indicates YLL due to suicide and self-inflicted injuries.
The visualisation directly below shows the average YLL per individual deceased person separately for each of the study years (2003, 2011 and 2018). The causes of death shown in this visualisation are the top 20 leading contributors to years of life lost initially identified according to total YLL. The causes of death included are not necessarily among the top 20 leading causes according to average YLL.

In 2018, an average of 42.2 years were lost to ‘suicide and self-inflicted injuries’ among males, and 41.6 years were lost to ‘suicide and self-inflicted injuries’ among females.

The interactive data visualisation shows average years of life lost (YLL). The causes of death shown in this visualisation are the top 20 leading contributors to years of life lost initially identified according to total YLL. Sex (females, males, persons) and data year can be selected for viewing. Highlighted in purple indicates YLL due to suicide and self-inflicted injuries.

### Average years of life lost (YLL) per death, for the top 20 causes of YLL by sex, Australia, 2018

Select sex:
- Females
- Males
- Persons

Select data year:
- 2018

Note: Averaged from the top 20 years leading causes of life lost, by sex, in each year. Source: AIHW Australian Burden of Disease Database.
Child abuse and neglect during childhood was:

- consistently the leading behavioural risk factor contributing to the years of healthy life lost due to suicide and self-inflicted injuries in both men and women since 2003 and has increased at each time point.
- associated with 32% of the years of healthy life lost due to ‘suicide and self-inflicted injuries’ in men (about 25,700 DALYs) and 43% of the years of healthy life lost due to ‘suicide and self-inflicted injuries’ in women (about 12,000 DALYs) in 2019 with the vast majority of these years of healthy life lost due to premature death.

Until 2018, among men, the second and third leading risk factors contributing to the years of healthy life lost due to suicide and self-inflicted injuries were ‘alcohol use’ and ‘illicit drug use’ across all years of the Australian Burden of Disease Study. Since 2018, ‘illicit drug use’ became the second leading risk factor contributing to the years of healthy life lost due to suicide and self-inflicted injuries among men followed by ‘alcohol use’. In 2019 this trend continued:

- ‘illicit drug use’ was responsible for 23% (about 18,600 DALYs) of the years of healthy life lost to ‘suicide and self-inflicted injuries’ among men.
- ‘Alcohol use’ was responsible for 22% of the years of healthy life lost due to ‘suicide and self-inflicted’ injuries in men (about 18,100 DALYs).

For women, the second greatest contributor to the years of healthy life lost due to ‘suicide and self-inflicted injuries’ was ‘intimate partner violence’ (estimated in women only) which was consistent over all study years. The third leading contributor of healthy life lost due to suicide and self-inflicted injuries among women has remained ‘illicit drug use’ since 2018. In 2019:

- ‘Intimate partner violence’ contributed 25% of the years of healthy life lost due to suicide and self-inflicted injuries in women (about 7,000 DALYs).
- ‘illicit drug use’ contributed to 11% of the years of healthy life lost to suicide and self-inflicted injuries (about 3,100 DALYs) among women.

The interactive data visualisation shows the burden (based on frequency) of suicide and self-inflicted injuries attributable to selected risk factors and categorised by age (from 5 years old to over 85). Selection for sex (females and males), data year (2003, 2011, 2015, 2018 and 2019) and attributable DALY, YLD and YLL are available for viewing.

In 2019, ‘child abuse and neglect’ during childhood was the greatest contributor to the years of healthy life lost due to suicide and self-inflicted injuries in both men and women in all age groups. The exception to this are women aged 85 years and over where ‘intimate partner violence’ was the highest contributor. The majority of the ‘child abuse and neglect’ burden was experienced among people aged 15-44 years. In females, the number of DALYs was similar across these age groups (about 2,000-2,900 DALYs). The highest among men was between ages 25-34 years (7,000 DALYs).

Similarly, most of the years of healthy life lost due to suicide and self-inflicted injuries attributable to ‘alcohol use’ or ‘illicit drug use’ was experienced in ages 15-54 years. Both risk factors were highest among both men and women aged 15-34 years.
The years of healthy life lost due to suicide and self-inflicted injuries in women that were attributable to ‘intimate partner violence’ was highest among women aged 35-44 years.

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Impact of suicide among Aboriginal and Torres Strait Islander Australians

Suicide rates among Aboriginal and Torres Strait Islander people are substantially higher than those of non-Indigenous Australians (see Deaths by suicide amongst Indigenous Australians (https://www.aihw.gov.au/suicide-self-harm-monitoring/data/populations-age-groups/suicide-indigenous-australians)). Reducing deaths by suicide and suicidal behaviour among Indigenous Australians is a public health priority for all Australian governments (Cth of Australia, 2022). Therefore, providing data and information about suicide and self-harm among Indigenous Australians is a priority for the National Suicide and Self-harm Monitoring System.

For more information on suicide among Indigenous Australians and efforts to enhance and improve access to the evidence base, see the Indigenous Mental Health and Suicide Prevention Clearinghouse (https://www.indigenousmhspc.gov.au/).

The following is an overview of the estimated impact of suicide among Indigenous Australians, from AIHW’s Australian Burden of Disease study (see Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2018 (https://www.aihw.gov.au/reports/burden-of-disease/illness-death-indigenous-2018/summary)). The visualisation directly below shows the estimated total number of years of life lost (YLL) among Indigenous Australians for the top 20 leading contributors to YLL. This information is displayed separately for each of the study years (2003, 2011 and 2018).

Suicide and self-inflicted injuries were the second highest cause of total YLL among Indigenous Australians, second to coronary heart disease across all three data years. In 2018, there was approximately 10,800 YLL for suicide and self-inflicted injuries, an increase of around 2,400 years since 2011 (8,400 YLL) and 4,100 years since 2003 (6,700 YLL).

Among Indigenous men, suicide and self-inflicted injuries were the second highest cause of YLL, after coronary heart disease. Approximately 8,000 years of life were lost to suicide and self-inflicted injuries in 2018, compared to around 5,900 YLL in 2011 and 5,400 YLL in 2003.

In 2018, approximately 2,800 years of life were lost due to suicide and self-inflicted injuries among Indigenous women. Though suicide and self-inflicted injuries were the second leading cause of YLL in both 2018 and 2011, they were the sixth leading cause of YLL among Indigenous women in 2003.

The interactive data visualisation shows the leading causes for years of life lost (YLL) among Aboriginal and Torres Strait Islander people, based on leading causes of mortality in Australia. Sex (females, males, persons) and data year (2003, 2011, 2015, 2018) can be selected for viewing. Highlighted in purple indicates YLL due to suicide and self-inflicted injuries.
The visualisation directly below shows the average YLL per individual deceased among Indigenous Australians separately for each of the study years (2018, 2011, and 2003). The causes of death shown in this visualisation are the top 20 leading contributors to total YLL identified above. The causes of death included are not necessarily among the top 20 leading causes according to average YLL.

Among all Indigenous people who died by suicide and self-inflicted injuries, an average of around 55 years of life were lost in 2018, 2011, and 2003. The average YLL by suicide and self-inflicted injuries is higher for Indigenous people compared to non-Indigenous people. The average YLL by suicide and self-inflicted injuries for non-Indigenous people was 41 in 2018 and 2011, and 43 in 2003.

Among Indigenous men, the average YLL per death by suicide and self-inflicted injuries was 55 in 2018 and 2011 and 56 in 2003. Among Indigenous women, the average YLL per death by suicide and self-inflicted injuries was 57 in 2018 and 2011 and 58 in 2003.

The interactive data visualisation shows the leading causes for average years of life lost (YLL) based on leading causes of mortality in Australia. Sex (females, males, persons) and data year (2003, 2011, 2015, 2018) can be selected for viewing. Highlighted in purple indicates YLL due to suicide and self-inflicted injuries.
Average years of life lost (YLL) per death for the top 20 causes of YLL among Aboriginal and Torres Strait Islander people, by sex, 2018

Select sex: Males
Select data year: 2018

Note: Averaged from the top 20 years leading causes of life lost by sex in each year
Supplementary Table: 5.2.1
Source: AIHW Australian Burden of Disease Database
Latest data: 2018

References


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Psychosocial risk factors and deaths by suicide

Capturing information on risk factors relating to deaths by suicide can highlight areas of a person’s life experience that may need additional attention to provide the most effective suicide prevention interventions. However, it is important to note that the presence of one or more of these risk factors in an individual’s life does not necessarily mean they will have suicidal behaviours. The vast majority of people who experience these risk factors will not experience suicidal behaviours.

As part of the National Suicide and Self-harm Monitoring Project the AIHW has funded the Australian Bureau of Statistics (ABS) to identify and code (using ICD-10) psychosocial risk factors for deaths referred to a coroner, including deaths by suicide.

In 2020, the ABS added codes for the capture of the COVID-19 pandemic as a risk factor based on how it was described as part of the coronial investigation:

- F41.8 Pandemic-related anxiety and stress
- Z29.0 Isolation or quarantine (hotel or home), and
- Z29.9 Prophylactic measures put in place through health directives for pandemic response, including closure of business and stay at home measures.

Although there was a 6.3% reduction in the number of deaths by suicide from 2019 to 2021, there were 81 people who died by suicide in 2021 (2.6% of all suicides) who had the COVID-19 pandemic mentioned in either a police or pathology report, or a coronial finding. However, for people who died by suicide and had the COVID-19 pandemic mentioned as a risk factor, it did not appear as an isolated risk (they had, on average, 6 risk factors and 3 psychosocial risk factors). It is important to remember that circumstances relating to suicide are complex and multifaceted and a combination of multiple factors contribute to a person taking their own life rather than a single reason.

In 2021, of those who died by suicide with issues relating to the COVID-19 pandemic as a risk factor:

- over 65% also had mood disorders, including depression
- almost 40% also had problems relating to employment or unemployment
- 11 people also had problems related to the social environment, including social isolation (this is down from 25 in 2020)
- the majority of people lived in New South Wales, Victoria, or Queensland.

When COVID-19 was mentioned as a risk factor it manifested in different ways. For some people direct impacts from the pandemic, such as job loss, lack of financial security, family and relationship pressures, and not feeling comfortable with accessing health care were noted. For others, a general concern or anxiety about the pandemic and societal changes were stated or anxiety about contracting the virus itself. From 2017 to 2021, around two-thirds of all deaths by suicide had at least one or more psychosocial risk factor identified. The types of psychosocial risk factors associated with deaths by suicide were age dependent and differed throughout the lifespan.

Most frequently occurring psychosocial risk factors in coroner-certified suicide deaths by age and sex, Australia, 2021.

The horizontal bar graph shows the proportion of coroner-certified deaths by suicide with psychosocial risk factors identified in males in Australia in 2021. The user can choose to view the data by sex, by age groups, and by the number of deaths by suicide with psychosocial risk factors identified.
From 2017 to 2021:

- ‘Personal history of self-harm’ was the most commonly identified risk factor in males and females in all age groups (except 65 and over) with 16% and 33% respectively.
- ‘Limitation of activities due to disability’ was the most commonly identified risk factor in males and females aged 65 and over (25% and 22% respectively).
- ‘Disruption of family by separation and divorce’ and ‘Problems in relationship with spouse or partner’ were common risk factors in males and females aged under 55.
- ‘Problems related to other legal circumstances’ was a common risk factor in males aged 25–54 (associated with more than 10% of deaths by suicide).
- ‘Other problems related to housing and economic circumstances’ emerged as another common risk factor in males aged 35-64 (associated with 9% of deaths by suicide in these age groups).
- ‘Disappearance and death of a family member’ was also identified as a frequently occurring psychosocial risk factor in males and females.

There is no national standard for the collection of data on psychosocial factors—each state and territory has its own legislation and processes relating to coroner-certified suicide deaths meaning that the type of information collected and held by the NCIS database differs slightly by jurisdiction. Also, due to the method used for the collection of data, protective factors are not included.

The ABS reviewed and coded psychosocial risk factors (defined as social processes and social structures which can have an interaction with individual thought, behaviour and/or health outcomes) associated with deaths by suicide in 2017 through a review of police, toxicology and pathology reports and coronial findings held by the NCIS. The AIHW is working with the ABS to continue this work and embed psychosocial risk factors in future national mortality data sets.

References
Suicide & self-harm monitoring

**Social and economic factors and deaths by suicide**

There is growing evidence that social factors, including education, employment status, income level and wealth, play an important role in determining the risk of suicide in high income countries (Blakely et al, 2003).

A combination of factors contribute to someone considering suicide. Although some social factors may be associated with an increased risk of suicide, they cannot be considered a direct cause.

Understanding how social factors affect the risk of 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.

Using linked data from the Multi-Agency Data Integration Project (MADIP), the AIHW has conducted two studies and a further study in collaboration with the Australian National University’s Centre for Social Research and Methods to identify social and economic characteristics associated with greater risk of death by suicide. While these pieces of work are distinct, together they add to the growing understanding of population-level influences on suicide deaths in Australia.

The MADIP is a partnership among Australian Government agencies to link administrative and survey data. These studies used de-identified Australian Census of Population and Housing (2011) data linked with 7 years of Death Registrations (2011 to 2017). For more detailed information on the MADIP data asset, data linkage and analytical methods used, see Technical notes.

Data linkage combines information from multiple sources, while preserving privacy. All linked data sets used for analysis at the AIHW comply with legislative and regulatory standards, are securely stored and accessed, and meet ethical standards and community expectations. Protocols are in place to prevent privacy breaches or the unauthorised identification of individuals, and to ensure data security and restricted access to information.

The initial analysis, Educational attainment, employment and deaths by suicide, found that the cumulative risk of suicide in Australia is higher in those with fewer years of education and is lower among those who are employed. These results have been reported previously on Suicide and self-harm monitoring.

Additional analysis, Regression risk models for selected census variables, developed statistical regression models to examine the association between 10 identified predictive social and economic factors from the 2011 Census and deaths by suicide in Australia. The difference between this approach and the previous cumulative risk analysis, is that regression allows for adjustment for the various risk factors for suicide, which may make estimates more precise.

The multivariate (multiple variables) regression model showed that the strongest associations with deaths by suicide (relative to respective reference groups, and after adjusting for other variables in the model) included:

- being male (HR = 3.12; 95% CI 2.93 to 3.32)
- being widowed, divorced or separated (HR = 1.95; 95% CI 1.79 to 2.12)
- being in a lone person household (HR = 1.72; 95% CI 1.57 to 1.87)
- being unemployed (HR = 1.75; 95% CI 1.55 to 1.99) or not in the labour force (HR = 1.80; 95% CI 1.64 to 1.99)

Results for other variables are reported on Regression risk models for selected census variables.

In further analysis, Social and economic factors associated with suicide in Australia: a focus on individual income reported here for the first time, a longitudinal approach was taken, which enabled the investigation of changes to individuals’ income and employment status across time. It also examined the absolute risk, as well as relative odds of dying by suicide.

The longitudinal multivariate regression model confirmed findings from the Regression risk models for selected census variables study and produced additional insights into associations between deaths by suicide, income and income uncertainty including:

- those with higher income uncertainty had higher odds of suicide death relative to those with lower income uncertainty. Relative to those in the lowest income uncertainty quintile, the odds of dying by suicide increased by 1.91 (95% CI 0.29 to 0.44) for those in the highest income uncertainty quintile.
people who experienced longer periods of unemployment had higher odds of suicide death. Relative to those with no periods of unemployment, the odds of dying by suicide increase by 1.57 (95% CI 1.21-2.05) for those unemployed for 2 years; 1.75 (95% CI 1.36-2.26) for those unemployed for 3 years; 2.03 (95% CI 1.61-2.57) for those unemployed for 4 years; and 1.96 (95% CI 1.61-2.57) for those unemployed for 5 years.

Additional results are reported on Longitudinal analysis of income uncertainty and the full report can be found on Releases.
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Deaths by suicide, by socioeconomic areas

There is a strong association between socioeconomic status and deaths by suicide. Age-standardised rates and numbers of deaths by suicide tend to be higher for those living in lower socioeconomic areas (more disadvantaged areas). However, it is important to remember that suicide can affect all Australians and each person’s experience is unique; not everyone who lives in these areas will experience suicidal behaviours.

Socioeconomic status classifies individuals according to the socioeconomic characteristics of the area in which they lived prior to their death by suicide. These areas are defined using the ABS Index of Relative Socio-Economic Disadvantage (IRSD), which reflects the average level of socioeconomic disadvantage of the area, rather than individuals (see Technical notes for more information). Variables used in calculating the IRSD index include household income, unemployment and levels of education.

Suicide deaths by socioeconomic area and mechanism, Australia, 2010 to 2021.

The series of line graphs show age-standardised suicide rates for socioeconomic areas (Quintiles 1 to 5) from 2010 to 2021 for all mechanisms combined. Users can also choose to view age-standardised suicide rates and numbers of deaths by suicide by mechanism, and specified mechanisms as a proportion of all mechanisms, for each socioeconomic area.

Content warning:
The data in this visualisation might be distressing to some readers as it contains data on the modality of suicide deaths and attempts. Please consider your need to read the following information. If this material raises concerns for you or if you need immediate assistance, please contact a crisis support service, available free of charge, 24 hours a day, 7 days a week.

Please consider the Mindframe guidelines if reporting on these statistics.

Proceed to visualisation

Highest rates of suicide occur in lowest socioeconomic areas

From 2010 to 2021, age-standardised suicide rates were highest for those who lived in the lowest socioeconomic areas (most disadvantaged areas), and generally decreased as the level of disadvantage lessened.
In 2021, the overall suicide rate for people living in the lowest socioeconomic (most disadvantaged) areas (18.4 deaths per 100,000 population; Quintile 1) was more than twice that of those living in the highest socioeconomic (least disadvantaged) areas (8.1 deaths per 100,000 population; Quintile 5).

As for rates, the number of deaths by suicide for the 5 socioeconomic areas generally declined as socioeconomic disadvantage decreased.

**Suicide rates increased over time in lowest socioeconomic areas**

Age-standardised suicide rates increased for those living in the lowest socioeconomic areas (Quintile 1) from 13.0 deaths per 100,000 population in 2010 to a peak of 19.4 in 2017, before falling gradually to 18.4 deaths per 100,000 population in 2021. In contrast, little change was observed for those living in the 2 highest socioeconomic areas (Quintiles 4 and 5).

Henley and Harrison (2019) found that over the period 2009-10 to 2015-16, suicide rates increased significantly for those living in the lowest socioeconomic areas (most disadvantaged) by an average 3.5% per year while little change was observed for those in the highest (least disadvantaged) socioeconomic areas (0.2% change per year).

**Methods of suicide vary by socioeconomic area**

Understanding the methods used for suicide can play an important role in suicide prevention. These data are provided to inform discussion around restriction of access to means as a policy intervention for the prevention of suicide.

Please consider your need to read the following information. If this material raises concerns for you or if you need immediate assistance, please contact a [crisis support service](https://mindframe.org.au/suicide/communicating-about-suicide/mindframe-guidelines), available free of charge, 24 hours a day, 7 days a week.


The classification system used to code causes of deaths data, ICD-10, uses the term ‘mechanism’ to refer to the external cause of death. Throughout Suicide & self-harm monitoring ‘mechanism’ has been used in data visualisations, while the term ‘method’ has been used in the accompanying text.

Throughout 2010 to 2021, age-standardised suicide rates generally decreased with decreasing socioeconomic disadvantage, for hanging (ICD-10 X70) and firearms (ICD-10 X72–X75). However, there was little difference in suicide rates between socioeconomic areas for poisoning excluding gas (ICD-10 X60–X66, X68–X69), poisoning by gas (ICD-10 X67) or other methods (ICD-10 X71, X76–X84, Y87.0).

In 2021, the rate of suicide by hanging for those living in the lowest socioeconomic areas (Quintile 1) was 2.7 times higher than that of those living in the highest socioeconomic areas (Quintile 5) (12.5 vs 4.7 deaths per 100,000 population). For firearms, poisoning by gas, exposure to poisonous substances excluding gas and other methods of suicide there was little variation between the highest and lowest socioeconomic areas in 2021.

The proportion of deaths by suicide by either exposure to poisonous substances excluding gas or other methods tended to increase with decreasing socioeconomic disadvantage while the proportion of deaths by hanging tended to decrease.

**Reference**

Intentional self-harm hospitalisations by socioeconomic areas

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information refer to theTechnical notes.

Socioeconomic status classifies individuals according to the socioeconomic characteristics of the area in which they live. These areas are defined using the ABS Index of Relative Socio-Economic Disadvantage (IRSD), which reflects the average level of socioeconomic disadvantage of the area (seeTechnical notes for more information).

Intentional self-harm hospitalisations, by age, sex and socioeconomic areas, Australia, 2012-13 to 2020-21.

The line graph shows age-specific rates of intentional self-harm hospitalisations from 2012-13 to 2020-21 by socioeconomic areas from Quintile 1, the most disadvantaged, to Quintile 5, the least disadvantaged. Users can also choose to view age-specific rates, numbers and proportion of hospitalisations for intentional self-harm by socioeconomic areas by sex and specific age groups. For the period 2012-13 to 2020-21, rates of intentional self-harm hospitalisations were highest in the most disadvantaged areas (Quintile 1) with the lowest rates in the least disadvantaged areas (Quintile 5). Rates varied across the period for all Quintiles.

Does socioeconomic status affect risk of intentional self-harm?

Rates of hospitalisations for intentional self-harm tend to be higher for those living in lower socioeconomic (more disadvantaged) areas.

In 2020-21:
the rate for the most disadvantaged areas (Quintile 1) was 135 hospitalisations per 100,000 population, which is 1.5 times higher than the rate for the least disadvantaged areas (Quintile 5; 90 per 100,000 population).

A similar pattern was seen in suicide rates in 2020, see Suicide by socioeconomic areas.

How have rates of intentional self-harm hospitalisations changed for socioeconomic areas?

From 2012–13 to 2020–21:

- the highest proportion of intentional self-harm hospitalisations was for people living in the lowest socioeconomic (most disadvantaged) areas; this proportion has remained relatively stable over the period at around 25%
- rates for males in the lowest socioeconomic areas, Quintile 1 and 2, increased from 115 and 98 hospitalisations per 100,000 to 129 and 110 in 2016–17, respectively, and then decreased to 98 and 79 in 2020–21
- rates for females in the lowest (most disadvantaged) socioeconomic areas also increased from 179 in 2012–13 to 206 in 2016–17 and then decreased to 171 in 2020–21.

For both males and females, the highest age-specific rates of hospitalisations between 2012–13 and 2020–21 were recorded for those aged 25–44 in the lowest socioeconomic areas (Quintile 1), with the highest age-specific rates recorded for females in this age group.

- there was an increase in hospitalisations for all socioeconomic areas in females aged 0–24 from 2019–20 to 2020–21
- rates for females aged 25–44 in Quintile 1 increased from 243 per 100,000 population in 2012–13 to 272 in 2016–17 before falling to 206 in 2020–21

An increase in the rate of hospitalisations due to intentional self-harm for all socioeconomic areas was reported in 2016–17, which may be due to increases in hospitalisations in 3 states. Variation in hospital admission policy and practices between states and territories may have contributed to differences in the reporting of hospitalisation data. For further information, see the data quality statement - external site opens in new window.

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Deaths of despair

Since the late 1990s, there has been a marked increase in the overall mortality of middle-aged white non-Hispanic males and females in the United States (Case and Deaton 2015, 2017, 2020). This increase in mortality was largely attributed to increases in deaths by suicide, drug and alcohol poisonings (both accidental and undetermined intent) and deaths due to chronic liver diseases and cirrhosis - together termed ‘deaths of despair’ by Case and Deaton (Case and Deaton, 2015, 2017, 2020). They linked this trend to a decline in economic security, a lack of universal health care and the widespread availability of opioids (Case and Deaton 2015, 2017, 2020). In 2017, Case and Deaton suggested that a similar increase in mortality from deaths of despair may be emerging in other countries (Case and Deaton 2017).

Selected causes of death, by sex, Australia, 1997 to 2021.

The line graph shows age-standardised rates of death by suicide, alcoholic liver disease and cirrhosis, accidental poisoning, and all of these causes combined from 1997 to 2020. Users can also choose to view age-standardised death rates and numbers of deaths for this period by sex and cause of death.

An analysis of Australian mortality data using methods similar to those used by Case and Deaton shows that Australians are not increasingly dying due to these ‘deaths of despair’ over time. The rates of combined deaths by suicide, alcoholic liver disease and cirrhosis, and accidental poisoning (deaths of despair) over the period 1997 to 2021 show no clear trend. Over the past 5 years the rate has remained around 23 to 25 deaths per 100,000 population (from 2015 to 2021), similar to rates at the start of the period 1997 to 1999; between these dates rates remained lower (around 20 deaths per 100,000 population).
Males are more likely than females to die by these selected causes of death (suicide, alcoholic liver disease and cirrhosis, and accidental poisoning). At the start of the period, rates of combined deaths by suicide, alcoholic liver disease and cirrhosis, and accidental poisoning in males were at a high of around 36-38 deaths per 100,000 population from 1997 to 1999 and female rates were around 11 deaths - about 3.2 to 3.4 times lower than males. In the past 5 years from 2017, death rates for both males and females have shown little variation with male rates ranging between 34 and 37 deaths per 100,000 population and female rates around 13 to 14 - that is, these causes of death are about 2.7 times more common in males than females.

For males, deaths by suicide accounted for the majority (53-67%) of these ‘deaths of despair’ over the period 1997 to 2021. In contrast, deaths by suicide tended to account for around half (43-57%) of these deaths in females.

References


Suicide & self-harm monitoring

Technical notes

This section contains more detailed information about the data sources, codes and classifications, and analysis methods used in compiling data for Suicide & self-harm monitoring.
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Data sources

National Mortality Database (NMD)

The AIHW National Mortality Database (NMD) contains records for deaths in Australia from 1964 to 2020. The database comprises information about causes of death and other characteristics of the person, such as sex, age at death, area of usual residence and Indigenous status.

The Cause of Death Unit Record Files are provided to the AIHW by the Registries of Births, Deaths and Marriages in each state and territory and the National Coronial Information System (managed by the Victorian Department of Justice). The cause of death data are compiled and coded by the Australian Bureau of Statistics (ABS) to the International Statistical Classification of Diseases and Related Health Problems (ICD) and maintained at the AIHW in the NMD. Registration of deaths is the responsibility of the Registry of Births, Deaths and Marriages in each state and territory.

To improve the quality of data, the ABS annually revises the causes of death for coroner-referred deaths to reflect the latest available information. This process applies to deaths registered after 1 January 2006. Deaths registered in 2018 and earlier are based on the final version of cause of death data; deaths registered in 2019 are based on the revised version; and deaths registered in 2020 and 2021 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS. For a more detailed description of the coverage and processing of deaths data, including deaths certified by the coroner, refer to the Explanatory Notes in ABS Causes of death, Australia (ABS Catalogue No. 3303.0), which is available from the ABS website - external site opens in new window.

Care needs to be taken when interpreting data derived from deaths registered in Victoria. Following two reconciliation exercises between the ABS and the Victorian Registry of Births, Deaths and Marriages, 2,812 additional registrations from 2017-2019 (including 180 suicide deaths) and 1,864 registrations from 2013-2016 (including 72 suicide deaths) were identified that had not previously been provided to the ABS. A time series adjustment has been applied to these deaths to enable a more accurate comparison of mortality over time. Affected deaths are present in the year in which they were registered. For detailed information on this issue please refer to Technical note: Victorian additional registrations (2013-2016) in Causes of Death, Australia 2021 - external site opens in new window.

In the NMD, both the year in which the death occurred and the year in which it was registered are provided. Year of registration has been used for the purposes of monitoring deaths by suicide. Deaths based on the year the death occurred have also been presented; however, as some deaths at the end of each calendar year may not be registered until the following year, year of death information for the latest available year (2020) is generally an underestimate of the actual number of deaths that occurred in that year.

Deaths (such as those from suicide) that are referred to a coroner can take time to be fully investigated, which can influence what information is available to assign a cause of death code during the ABS coding process. Each year, some coroner cases are coded by the ABS before the coronial proceedings are finalised. Coronor cases that have not been closed or had all information made available can impact on data quality as less specific ICD-10 codes often need to be applied. At the time of coding 2021 data there was a higher proportion of open coroner cases at preliminary coding than seen in previous years (67.2% in 2021 versus a 5-year average for 2015-2019 of 56.2%). This is reflected in the 2021 dataset by a higher rate of deaths due to 'other ill-defined and unspecified causes of mortality' (R99).

Deaths due to other ill-defined and unspecified causes of mortality (R99) are in scope for revision and it is expected that deaths due to intentional self-harm will increase through the revisions process. For further information surrounding the revisions process, see Coding of suicide in the Deaths on the ABS Causes of Death, Australia, 2021 methodology - external site opens in new window.

The data quality statements underpinning the AIHW NMD can be found on the following ABS internet pages:

- ABS Quality declaration summary for Causes of death, Australia (ABS cat. no. 3303.0) - external site opens in new window.
- ABS Quality declaration summary Deaths, Australia - external site opens in new window.
Quality of Indigenous status data

The Aboriginal and Torres Strait Islander status of a deceased person is captured through the death registration process; however, it is recognised that not all such deaths are captured through these processes, leading to under-identification. Also, data on deaths by suicide in Indigenous people have been compiled by jurisdiction of usual residence for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. Data for Victoria, Tasmania and the Australian Capital Territory have been excluded in line with national reporting guidelines.

National Hospital Morbidity Database (NHMD)

Data for patients who were hospitalised with intentional self-harm injuries are sourced from the AIHW’s National Hospital Morbidity Database (NHMD). Most of the data used for the monitoring of hospitalisations for intentional self-harm are from 2008–09 to 2020–21. For each reference year, the NHMD includes all hospitalisations for patients who were discharged between 1 July and 30 June.

The NHMD is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals. It is a comprehensive data set that has records for all episodes of admitted patient care from essentially all public and private hospitals in Australia.

The data supplied are based on the National Minimum Data Set (NMDS) for Admitted Patient Care and include administrative, demographic, clinical and length of stay data, as well as data on the diagnoses of the patients, the procedures they underwent in hospital and external causes of injury and poisoning.

The purpose of the NMDS for Admitted Patient Care is to collect information about care provided to admitted patients in Australian hospitals. The scope of the NMDS includes episodes of care for admitted patients in all public and private acute and psychiatric hospitals, free standing day hospital facilities, and alcohol and drug treatment centres in Australia. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia’s off-shore territories are not in scope but may be included. Hospitals specialising in dental, ophthalmic aids and other specialised acute medical or surgical care are included.

episode of care: The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only one care type (see care type and separation). METeOR identifier: 268956.

separation: The process by which an episode of care for an admitted patient ceases. A separation may be formal or statistical. METeOR identifier: 327268.

formal separation: The administrative process by which a hospital records the cessation of treatment and/or care and/or accommodation of a patient.

statistical separation: The administrative process by which a hospital records the cessation of an episode of care for a patient within the one hospital stay.

The criteria used to describe intentional self-harm hospitalisations reported in Suicide & self-harm monitoring is described in the Codes and classifications section.

Data limitations

States and territories are primarily responsible for the quality of the data they provide. However, the AIHW undertakes extensive validations on receipt of data, checking for valid values, logical consistency and historical consistency. Where possible, data in individual data sets are checked with data from other data sets. Potential errors are queried with jurisdictions, and corrections and resubmissions may be made in response to these queries. Except as noted, the AIHW does not adjust data to account for possible data errors or missing or incorrect values.

The most recent Data quality statement for Admitted Patient Care - external site opens in new window is available in METeOR. The Data Quality Statement contains information on other changes that may affect interpretation of the data for the relevant year.

Quality of Indigenous status data

While the Indigenous status data in the Admitted Patient Care NMDS for all states and territories are considered of sufficient quality for statistical reporting, separations for Aboriginal and Torres Strait Islander people are generally under-enumerated. In 2011-12, about 88% of Indigenous Australians were identified correctly in hospital admissions data, and the ‘true’ number of separations for Indigenous Australians was about 9% higher than reported. Caution should be used in the interpretation of Indigenous status data because of the under-enumeration overall and differences in under-enumeration among the states and territories. The quality of the data for private hospitals is not known, but likely to be poor.

National Ambulance Surveillance System (NASS)
The National Ambulance Surveillance System (NASS) is a new public health monitoring system providing timely and comprehensive data on intentional self-harm (including suicidal behaviours with self-injurious intent), mental health, and alcohol and drug harms in the community. For the National Ambulance Surveillance System (NASS) are compiled by Turning Point in partnership with Monash University and are sourced from paramedic electronic patient care records provided by Australian state and territory-based ambulance services. As part of the National Suicide and Self-harm Monitoring Project, the AIHW has contracted Turning Point through Monash University to develop the National Ambulance Surveillance System (NASS) for self-harm related attendances. Self-harm (suicidal ideation, suicide attempt, self-injury) related modules from the NASS are reported here.

The ambulance attendance data includes 1-month per quarter snapshots from New South Wales (NSW), Victoria (Vic), Tasmania (Tas) and the Australian Capital Territory (ACT) from 2018 to 2021, and Queensland (Qld) from 2020 to 2021. AIHW began receiving monthly snapshot data for NSW, Vic, Qld, Tas and the ACT from January 2021.

Information is obtained and coded through manual scrutiny of de-identified electronic patient care records (ePCRs), including paramedic clinical assessment, patient self-report, information from third parties and other evidence at the scene, such as written statements of intent (including social media, text messages and written notes), as recorded by paramedics. Intent of self-harm behaviours derived from the ePCR may be from either stated or physical evidence, or where there is evidence but the patient may have denied the behavioural intent (Lubman et al. 2020).

Self-harm related ambulance attendances are included if self-harm occurred in the preceding (past 24 hours) or during the ambulance attendance, with 4 categories of self-harm related ambulance attendances defined and coded as:

- self-injury (non-fatal intentional injury without suicidal intent)
- suicidal ideation (thinking about killing oneself without acting on the thoughts)
- suicide attempt (non-fatal intentional injury with suicidal intent, regardless of likelihood of lethality)
- suicide (fatal intentional injury with suicidal intent).

Suicide, suicide attempt and suicidal ideation are considered mutually exclusive; however, self-injury could be simultaneously coded with any other self-harm case category.

The number of attendances related to suicide is under-represented as ambulances do not attend all deaths. Furthermore, when they do attend there may be insufficient information to determine suicidal intent at the scene.

Methods of suicide, suicide attempt or suicidal ideation are coded, as are methods of self-injury and categories of suicidal ideation preparation (planned, unplanned and unknown if planned) using a modified ICD-10 coding framework.

For more information see Lubman et al. 2020 - external site opens in new window (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0236344).

Data limitations

Data are collected for operational rather than monitoring or research purposes with paramedics only recording information that they either observe or is provided to them by the patient or bystanders, and which they deem clinically relevant to patient care. It is possible that relevant information with respect to self-harm or mental health variables is not recorded, or similar events may not be recorded consistently by different paramedics over time.

Multi-Agency Data Integration Project (MADIP)

The Multi-Agency Data Integration Project (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 2018). The key MADIP datasets used in this analysis were:

- Person Linkage Spine (Australian Bureau of Statistics)
- 2011 Census of Housing and Population (Australian Bureau of Statistics)
- Causes of Death (Australian Bureau of Statistics)
- Personal Income Tax (Australian Taxation Office)
- Social Security and Related Information (Department of Social Services)
- Synthetic income data developed by the Australian National University using personal income tax data, social security payment information and Census (for more information see Biddle & Marasinghe 2021 - external site opens in new window (https://taxpolicy.crawford.anu.edu.au/publication/ttpi-working-papers/18706/using-census-social-security-and-tax-data-multi-agency-data)).

Linkage approach

In order to identify socioeconomic factors associated with deaths by suicide in Australia, 2011 Census and 2011 to 2017 Causes of Death data were linked to the ABS Person Linkage Spine (Spine). The Spine is comprised of all persons in the Medicare Enrolments Database, Personal Income Tax or Social Security and Related Information data sets at any point between 2006 and 2016 (ABS 2019). As the baseline population, 2011 Census was considered a closed population and several assumptions were made about this population. These include:

- everyone in the 2011 Census who did not die over the period were still in the population up to the end of 2017, that is, no migration occurred
- person information in the 2011 Census were held constant over the analysis period. However, in the modelling analysis conducted, time varying age and income of the year before suicide were calculated and applied.
Table 1 shows the linkage coverage of Census 2011 and deaths by suicide from the ABS Causes of Death. The Estimated Residential Population of Australia at 30 September 2011 was 22.43 million people (ABS 2021). Of these, 20,739,159 were accounted for in the Census 2011, noting that the Census 2011 started in August 2011. In total, the linked Census 2011 population was 16,700,062 (74.4% of the total Australian population of September 2011). According to the National Deaths Index, there are 17,306 deaths by suicide from September 2011 to December 2017, of which 11,580 (67%) deaths by suicide were linked to the linkable Census 2011 data. Suicide was defined by ICD-10 external cause codes X60-X84 and Y87.0.

### Table 1: Linkage coverage of 2011 Census population and deaths by suicide in ABS MADIP

<table>
<thead>
<tr>
<th></th>
<th>Total (n)</th>
<th>Linked (n)</th>
<th>Linked (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERP(a) at Sept 2011</td>
<td>22,432,771</td>
<td>16,700,062</td>
<td>74</td>
</tr>
<tr>
<td>Deaths by suicide(b)</td>
<td>17,306</td>
<td>11,580</td>
<td>67</td>
</tr>
</tbody>
</table>

a. Estimated resident population. Linked records are from 2011 Census population.
b. Linked deaths by suicide weighted to all deaths by suicide from September 2011 to December 2017.

**Estimated suicide risk by educational attainment and employment method**

**Imputing weights for unlinked suicide deaths and 2011 Census**

To address the issue of unlinked deaths by suicide and 2011 Census records, an imputation weighting technique was used. This section describes the method used to develop these weights, which involved a three-staged approach.

First stage: imputing weights to scale up the Census population. The ABS historical ERP for 31 December 2011 by states, sex and 5-year age groups were used to derive weights by these demographic characteristics, based on the assumption that there were no significant differences in the age distribution of the population. The derived weight was applied at the person level for each record of Census that has ABS Person Linkage Spine (Spine) information to enable analysts to weight the analyses to the 31 December 2011 total ERP.

Unlike the original ABS research paper (ABS 2016) describing the creation of a linked data set between 2011 Census and deaths registered in the following 13 months, the imputation method did not calculate weights by Indigenous and non-Indigenous populations. Also, note that Diplomatic personnel resident in Australia have not been excluded from total ERP.

Second stage: suicide weights were calculated by using all deaths by suicide from 2011 to 2017 by states and territories, sex and 5-year age groups. Suicide weights were then applied at person level to only those linked Census records with suicide information. This made it possible to weight the analyses to all deaths by suicide (18,848) from 2011-2017.

An issue with applying suicide weights is that suicide weights are slightly higher when compared with population weights applied in the first stage. As such, the combined weights of the linked records with both 2011 Census and suicide information when aggregated, the weighted ERP will be slightly higher than that of 31 December 2011. Hence the need for a scale down adjustment factor.

Third stage: Finally, a scale down adjustment factor, derived based on total ERP, linked deaths by suicide and all deaths by suicide, was applied at the person level to only Census records without linked death by suicide information. Hence the weights of the Census population with or without linked death by suicide information, aggregated to the 31 December 2011 ERP (22,340,025).

**Cumulative suicide incidence**

Australian residents in the 2011 Census, weighted to 31 December 2011 estimated resident population (ERP) and linked to ABS Causes of Death data from 2011 to 2017 created a binary outcome of either died by suicide (ICD 10 external cause codes X60-X84, Y87.0) or not. Note that deaths by suicide used in this analysis are based on year of occurrence. These may differ from deaths by suicide data used in other AIHW publications which are based on year of registration. In addition to the closed population assumptions noted above, due to data quality issues the age in this analysis is at the time of the 2011 Census except for those who have died by suicide.

Over the period 2011 to 2017, Australia recorded more than 18,800 deaths by suicide of people who were in the 2011 Census. This resulted in a cumulative incidence of about 84 per 100,000 people during the 7-year period. The cumulative number and incidence of deaths by suicide that occurred over the 7 years varies considerably by sex, educational attainment and labour force status.

**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. An attempt has been made to reduce this error through imputation weighting process but some uncertainty remains.

- Timeliness of data: Some of the data used in this analysis is Census data collected in August 2011. A person’s education status 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.

- Randomness in the number of deaths by suicide that occur in a given time period, 2011-2017: The number of deaths by suicide that occur in a given time period 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 often assumed that the counts follow a Poisson distribution. If this is the case then the
Relative level of uncertainty due to randomness decreases as the number of deaths by suicide increase.

Regression risk models for selected census variables

The MADIP datasets used in this modelling are outlined in the Data section of these Technical notes. In this analysis, only people aged 25 to 64 years in the linked 2011 Census have been included, representing over 9 million people in the 2011 Census and 7,000 deaths by suicide from 2011 to 2017. This age group was chosen because most deaths by suicide occur between these ages and because of the relative stability of socioeconomic factors over time (such as level of education) among this age group. While suicide is the leading cause of death among people aged 15 to 24 years, people in this age group were excluded from the modelling because of their lack of socioeconomic stability.

Missing values have been excluded from this analysis. Educational attainment has the highest proportion of missing values (5.5%). Unlike with the cumulative suicide risk estimations, the data used in the regression modelling has not been weighted.

To identify modelling predictors and explore their association with suicide deaths, an extensive literature review of social factors was carried out. This included earlier analyses published by AIHW, which showed deaths by suicide varied by factors such as employment and educational attainment.

Socioeconomic factors identified from the 2011 Census were used as predictors and deaths by suicide as the outcome variable. A total of 10 factors were included:

- Age (10-year age groups)
- Sex
- Indigenous status
- Registered marital status
- Family household composition
- Highest level of educational attainment
- Labour force participation
- Occupation
- Synthetic total income (quartiles, see Biddle & Marasinghe 2021)
- Need for assistance with core activities of daily living

Method

Two modelling approaches were tested: Poisson regression and competing-risks regression (as described by Fine & Gray 1999). For Poisson regression, counts of the outcome variable with the value 1 for deaths by suicide and 0 for those who did not die by suicide were created and data aggregated by socioeconomic factor.

For the competing-risks regression, the influence of other causes of death is considered. This is because people who died from any other causes (such as cancer and coronary heart disease) are no longer at risk of dying by suicide.

Sex-stratified and Indigenous-stratified multivariate models were also fitted to investigate the associations within males and females, and within Indigenous and non-Indigenous people. Due to data quality issues including small sample sizes, Indigenous-stratified models have not been published. Univariate and multivariate models (including quasi-Poisson to deal with slight overdispersion) were also refitted. The coefficients obtained were back transformed so they could be interpreted as rate ratios (for Poisson models) and subhazard ratios (for competing-risks models). Analysis was conducted using R (glm package) and Stata (version 16) software.

Of the models tested, competing-risks regression, a method that accounts for people being censored from the risk set because of a competing cause, was used to estimate the risk of death by suicide and the selected socioeconomic factors. Univariate, multivariate and sex-stratified competing-risks models were developed. Generally, competing-risks regression models can be regarded as an extension of the Cox proportional hazards model, where subjects who experience competing events (deaths from other causes) are adequately counted as not having any chance of dying by suicide.

Estimated coefficients of competing-risks models can be interpreted in a similar way as coefficients estimated from a Cox model, except that they estimate the effect of certain covariates in the presence of competing events. Note that the transformed coefficients are known as subhazard ratios, similar to hazard ratios estimated in Cox regression. The subhazard ratio can be interpreted as a rate ratio (Henan 2010), but here we are considering the relative change in rates of the event in those subjects who are either currently event-free or who have previously experienced a competing event (Austin & Fine 2017). For simplicity and ease of understanding, coefficients in this report are referred to as hazard ratios.

Social and economic factors associated with suicide in Australia: a focus on individual income

Researchers from the Australian National University’s Centre for Social Research and Methods (CSRM), in close collaboration with the AIHW, have extended the analysis Regression risk models for selected census variables. An extract from the Multiagency Data Integration Project (MADIP) was used. For this analysis, the following MADIP datasets were utilized: 2011 Census information, 2011-2016 Personal income tax (PIT) records, 2011-2016 Social security and related information (SSRI) and 2011-2016 cause of death data. The data linkage process was identical to the linkage process described in the Data section of these Technical notes.

The following set of explanatory variables were used to capture the social and economic factors. More specifically, the CSRM used the time-invariant 2011 Census data to capture social factors and time-variant PIT and SSRI to capture economic factors of suicide.
Table 2 - Explanatory variables and sources

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Highest level of education</td>
<td>2011 Census</td>
<td>Social</td>
</tr>
<tr>
<td>2. Age</td>
<td>2011 Census</td>
<td>Social</td>
</tr>
<tr>
<td>3. Sex</td>
<td>2011 Census</td>
<td>Social</td>
</tr>
<tr>
<td>4. Indigenous status</td>
<td>2011 Census</td>
<td>Social</td>
</tr>
<tr>
<td>5. Need for assistance with core activities</td>
<td>2011 Census</td>
<td>Social</td>
</tr>
<tr>
<td>6. Household composition</td>
<td>2011 Census</td>
<td>Social</td>
</tr>
<tr>
<td>7. Total income</td>
<td>2011 - 2016 PIT</td>
<td>Economic</td>
</tr>
<tr>
<td>8. SSRI</td>
<td>2011 - 2016 SSRI</td>
<td>Economic</td>
</tr>
</tbody>
</table>

In addition to the variables presented in Table 1, the following variables were derived using Census, PIT and SSRI data.

1. A synthetic measure of income - A measure of income that was derived using a machine learning algorithm. This income variable provides a representative measure of income of the entire Australian population (Biddle and Marasinghe 2021). This measure was then divided into quintiles to obtain a relative measure of income.

2. Coefficient variation of income (relative standard deviation) - Coefficient of variation of income was used to capture the income uncertainty of each individual. The measure was defined such that it captured income uncertainty between the current year and the previous year (i.e. variation between t and t-1). This measure was then divided into quintiles. An income uncertainty of quintile 1 implied an individual had low-income variation relative those in higher income uncertainty quintiles. Furthermore, since this measure uses data from t-1, the scope of the study was limited to 2012 January to 2016 December.

3. Proxy for unemployment - Unemployment status of an individual was captured using SSRI information. More specifically, if an individual received Newstart allowance and Youth allowance, the individual was then classified as being unemployed that period.

Methods

Longitudinal (panel) regression

The MADIP dataset is a longitudinal dataset therefore, utilizing longitudinal regression methods allows us to control for unobserved individual heterogeneity across the time period. For example, longitudinal regression methods would allow us to control for unobserved measures such as behavioural differences and cultural differences across individuals. Given that suicide is a complex individual decision and may not be entirely explained by observed variables, controlling for these unobserved heterogeneity would allow us to obtain unbiased estimates.

In this analysis, two competing longitudinal regression methods were tested - a random effects logistic model and a population-averaged logistic model. Both models were estimated with robust standard errors to account for heteroskedasticity.

Given that the random effects logistic model is dependent on the strong assumption that the underlying variation have no serial correlation, the population-averaged logistic model was selected as the primary regression method due to its robustness to serial correlation (Hill et al., 2010). Furthermore, a likelihood-ratio test was also undertaken to decide between the two models. The result suggested that the population-averaged model was more appropriate than the Random effects model. Equation (1) and (2) outline the population-averaged model.

\[
Y^*_i = \alpha + \beta_i + \delta x_i + \epsilon_i \quad (1)
\]

\[
Y_{it} = \begin{cases} 1, & Y^*_i > 0 \\ 0, & \text{otherwise} \end{cases} \quad (2)
\]

Where \(Y^*_i\) is the dependent variable which takes the value 1 if individual \(i\) has completed suicide at time \(t\) and 0 otherwise. \(\beta_i\) is a vector of time-invariant explanatory variables, \(x_i\) is a vector of time-varying explanatory variables and \(\epsilon\) is the error term which is assumed to be independent and identically distributed with \(\sim N(0, \sigma^2)\).

Setting up the dataset as a panel allowed us to account for individual heterogeneity. However, given that suicide is a rare event, explanatory variables with large number of categories (for example - occupation) were excluded from the longitudinal analysis. This was primarily due the low number of suicides each year, which in turn made the models more sensitive to variables with a large number of categories. Given this drawback of panel data, a cross-sectional analysis was also conducted as a part of the sensitivity analysis.

Figure 1 - Annual suicide counts

1
Year 2011 was not included in the analysis.

Reference

Australian Defence Force (ADF) Suicide Data Sources

In addition to the NMD, the Australian Defence Force (ADF) suicide monitoring analysis used the following data sources:

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 2018). The NDI is used in linkage with the Personnel Management Key Solution (PMKeyS) and Defence Suicide Database (DSD) to create the linked PMKeyS-NDI data set used in analysis of deaths by suicide in the ADF population.

Personnel Management Key Solution (PMKeyS)
PMKeyS is a 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). This database contains demographic and service information at a given point in time and is linked to the NDI to identify deaths, including deaths by suicide, in the 3 ADF service status groups.

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 deaths by suicide are included in the database only on the advice of the ADF Investigative Service. Cases are confirmed by receipt of a coronial finding of death by 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 deaths by suicide only.


Australian Burden of Disease Study (ABDS)
Estimates of fatal (years of life lost, YLL) and non-fatal burden (years lived with disability, YLD) were sourced from the Australian Burden of Disease Study (ABDS) 2015. The ABDS 2015 used burden of disease analysis to measure the impact of 216 diseases and injuries on the health of the Australian population. The study provides a detailed picture of the burden of disease and injury in the Australian population in 2003,
2011 and 2015. It also includes estimates of the contribution made by selected risk factors on the disease and injury burden in Australia, and by socioeconomic areas for some risk factors.

The ABDS 2015 uses and adapts the methods of global studies to produce estimates that are more relevant to the Australian health policy context. The chosen reference period (2015) reflects the data availability from key data sources (such as the National Health Survey, deaths data, hospital admissions data and various disease registers) at the time of analysis.

Results from the study provide an important resource for health policy formulation, health service planning and population health monitoring. The results provide a foundation for further assessments.

Full details on the various methods, data sources and standard inputs used in the ABDS 2015 are available in Australian Burden of Disease Study 2015: methods and supplementary material.

Data from suicide registers

Victorian Suicide Register

The Victorian Suicide Register (VSR) contains data on all suicide deaths reported to the Coroners Court of Victoria (CCOV) since 2000 to the present. The Coroners Prevention Unit, a specialist investigative service for Victorian Coroners, manages the VSR since its implementation in 2012. The VSR operates with funding from the Victorian Department of Health.

VSR data is used to inform investigations into suspected suicides and support coronial recommendations to prevent similar deaths. VSR data are regularly shared with the Victorian Department of Health, AIHW, Victoria Police and other organisations involved in suicide prevention.

Data on the VSR is obtained and coded from materials gathered throughout the course of coronial investigation, including police notification of death, forensic reports (autopsy and toxicology), witness statements and medical records.

CCOV releases a range of suicide data reports from the VSR on their website - external site opens in new window (http://www.coronerscourt.vic.gov.au/forms-resources/publications/combine-fields/audience_target_id=all&field_publication_type_target_id=all&year=&page=5), including information on suspected deaths by suicide on a monthly basis, and overviews of Aboriginal suicides in Victoria.

Queensland Suicide Register

The Queensland Suicide Register (QSR) was established in 1990, containing records on all confirmed suicide deaths in Queensland from 1990 to 2017. The interim Queensland Suicide Register (iQSR) is a suicide surveillance system, providing real-time data on probable deaths by suicide from its development in 2011 to the present day. The Australian Institute for Suicide Research and Prevention (AISRAP) at Griffith University manages the databases, with funding from the Queensland Mental Health Commission.

The databases contain information from the Coroners Court of Queensland and Queensland Police Service, and checked against the National Coronial Information System. Data sources include post-mortem examination report (including toxicology), report of death from police, and psychological autopsy report.


New South Wales Suicide Monitoring and Data Management System

The New South Wales (NSW) Suicide Monitoring and Data Management System contains data on all suspected and confirmed suicide deaths between 2019 to present. Established in October 2020, the system is a collaboration between the NSW Ministry of Health, Department of Communities and Justice, the State Coroner and NSW Police.

The suicide surveillance system contains initial police information of suspected suicide deaths from the JusticeLink information system, which is managed by NSW Department of Communities and Justice. The information is manually checked against other data sources, including coronial determination.


National Integrated Health Services Information (NIHSI)

End of life service use for those who died from suicide in Australia

Data sources

Data are from the National Integrated Health Services Information Analysis Asset (NIHSI AA) version 0.5. This data asset includes mortality data together with information from hospital admissions, Medicare Benefits Schedule (MBS), Pharmaceutical Benefits Scheme (PBS) and residential aged care data.

The analysis population was those who had died between 1 July 2010 and 31 December 2017 in the linked National Deaths Index (NDI). Suicide was defined as the principal external cause of death in X60-X84 and Y87.0 based on the International Classification of Diseases, Tenth Revision (ICD-10) codes. Patient demographic information was taken from the NDI and is therefore accurate at the time of death not time of service. Only people whose age at death was between 15 to 64 years were included in the analysis. This was due to people in this...
age range making up the majority of those who die from suicide and to allow for better comparisons with deaths from other causes, which mostly occur in people older than 65 (AIHW 2022a). People without a primary cause of death and with sex not stated were also removed from the analysis due to small cell sizes.

**Method**

The analysis included MBS, PBS emergency department presentation and outpatient services in addition to hospital admissions datasets. For more information on MBS item classification and PBS item classification, drawn from the Anatomical Therapeutic Chemical (ATC) codes (AIHW 2022b), visit Mental health services in Australia - Data source and key concepts.

Hospitalisation data was taken from two sources: admitted patients and emergency department (ED) presentations. The method for counting hospital admissions in this analysis based on the method in a similar study by Clapperton et al. (2021), who external site opens in new window. The method for counting hospital admissions in this analysis based on the method in a similar study by Clapperton et al. (2021).

Within the NHISI AA v0.5, hospital data pertains to only New South Wales (NSW), Victoria (Vic) (excluding Albury-Wodonga), South Australia (SA) and Tasmania (Tas) public hospitals. Admitted patient information also contains information from private hospitals in Victoria. To ensure accurate comparisons with hospitals data, only deaths registered in NSW, Vic, SA and Tas are included in the analysis.

Admitted patient data refers to only acute admitted and mental health separations (Admitted Patient Care National Minimum Data Set care types of 1, 7.1, 7.2, and 11). In scope separations where the patient was transferred from another hospital or had a change of care type in the same hospital are not counted in the total to avoid duplication.

Any hospital episode (ED presentation, hospital admission) that ended in “death” was excluded as it was considered to be a result of the fatal (suicide) incident. The only exception to this were episodes where the intentional self-harm was coded as occurring in a health service area these episodes were retained as they were most likely inpatient suicides (Clapperton et al. 2021).

For admitted patient data, the definitions for mental health and self-harm behaviours include:

- ‘Any mental health’ hospitalisations are defined as any diagnosis (principal, secondary, etc.) of a mental disorder (ICD-10-AM codes F00-F99).
- Intentional self-harm hospitalisations are defined based on the ICD-10-AM principal diagnosis in the range S00-T75 or T79 and has a principal external cause code in the range X60-X84 or Y87.0.
- Suicidal ideation hospitalisations (ICD-10-AM code R45.81) are grouped with ‘any mental health’ and intentional self-harm hospitalisations, as this code is usually coded in the absence of a mental health condition.

For ED presentation data, the definitions ‘mental health-related ED presentations’ refers to presentations that have a principal diagnosis that falls within the Mental and behavioural disorders chapter (Chapter 5) of ICD-10-AM (codes F00-F99). It should be noted that this definition does not encompass all mental health-related presentations to ED. See Mental health services in Australia for further information.

Note that diagnosis codes for intentional self-harm sit outside the Mental and behavioural disorders chapter (X60-X84). Additionally, an ED presentation for self-harm may have a principal diagnosis relating to the injury. These presentations cannot be identified as mental health-related presentations and are not included in this analysis (AIHW 2022).

Presentations to hospital emergency departments relating to suicide attempts or intentional self-harm cannot be easily identified in the current national emergency department data collection. Furthermore, ICD-10-AM diagnosis codes for intentional self-harm do not specify if there was suicidal intent or not— and therefore includes both suicide attempts and non-suicidal self-harming behaviours (AIHW 2022b). See Suicide & self-harm monitoring: Intentional self-harm hospitalisations for further information.

‘Any hospitalisation’ refers to any acute admitted/mental health care separation or ED presentation.

Limitations of this analysis includes:

- Mental health items could be miscoded or reported, for example, GP mental health services are typically billed under general GP consultations.
- Service use captured in the NHISI is influenced by severity of condition, a person’s ability and desire to access a service, and the availability of alternative services not captured in the data (e.g. private community mental health services).

**References**


Clapperton A, Dwyer J, Millar C, Tolhurst P and Berecki-Gisolf J (2021) ‘Sociodemographic characteristics associated with hospital contact in
Suicide & self-harm monitoring

Need help now?
Lifeline 13 11 14
More /suicide-self-harm-monitoring/research-information/crisis-support

Indicates unlocked content for analysts Covers: Content is restricted based on your access level
Global Administrator

Codes and classifications

International Statistical Classification of Diseases (ICD) and Related Health Problems

The ICD, which was developed by the World Health Organization (WHO), is the international standard for coding morbidity and mortality statistics. It was designed to promote international comparability in collecting, processing, classifying and presenting these statistics. The ICD is periodically reviewed to reflect changes in clinical and research settings.

For Suicide & self-harm monitoring, deaths since 1964 (included in the NMD) classified as 'intentional self-harm' according to the relevant revisions of the ICD classification were included:

<table>
<thead>
<tr>
<th>ICD version</th>
<th>Years applicable</th>
<th>Intentional self-harm codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th revision</td>
<td>1958–1967</td>
<td>E970–E979 and E963</td>
</tr>
<tr>
<td>8th revision</td>
<td>1968–1978</td>
<td>E950–E959</td>
</tr>
<tr>
<td>9th revision</td>
<td>1979–1996</td>
<td>E950–E959</td>
</tr>
<tr>
<td>10th revision</td>
<td>1997 to date</td>
<td>X60–X84 and Y87.0</td>
</tr>
</tbody>
</table>

For deaths prior to 1964, please see General Record of Incidence of Mortality (GRIM) books GRIM 2017 Intentional self-harm (suicide) X60–X84, Y87.0 for ICD versions and codes used.

ICD-10-AM

Diagnosis, intervention and external cause data are reported to the NHMD by all states and territories using the International Statistical Classification of Diseases and Related Health Problems, 10th revision, Australian Modification (ICD-10-AM) and the Australian Classification of Health Interventions (ACHI). The Australian Coding Standards (ACS) are designed to be used in conjunction with the ICD-10-AM and ACHI to support sound coding convention.

The hospital separations reported were coded according to the applicable ICD-10-AM edition for the following years:

- 2010-11 to 2012-13: ICD-10-AM 7th edition

Records that satisfied the following criteria were included:

- a principal diagnosis in the ICD-10-AM range S00-T75, T79 (Injury, poisoning and certain other consequences of external causes)
- the first reported external cause code in the record in the ICD-10-AM range X60–X84, Y87.0 (external causes of morbidity).

Excluded from the criteria are:

- separations for which the care type was reported as Newborn (without qualified days), and records for Hospital boarders or Posthumous organ procurement
- separations with a mode of admission of 'transfer from another hospital'
- separations with reported ICD-10-AM code Z50 (Care involving the use of rehabilitation procedures) in additional diagnosis.

Changes to the Australian Coding Standard for Rehabilitation in 1 July 2015 ICD-10-AM (9th Edition), means that the ‘reason’ for rehabilitation (codes S00-T98 Injury, poisoning and certain other consequences of external causes) will be assigned the principal diagnosis and the rehabilitation code (Z50) will be sequenced as the additional diagnosis. This change results in an increase in the number of
separations in principal diagnoses with codes from S00–T98 from 1 July 2015 onwards. In order to reflect the number of injury separations where the primary clinical intent is acute care and not rehabilitation, records with Z50 (Care involving the use of rehabilitation procedures) in principal diagnosis or additional diagnosis for all years are excluded in the data set before and after the coding change.

Intentional self-harm hospitalisations reported in Suicide & self-harm monitoring may differ from other publications. The differences are small and may reflect differences in the inclusion criteria (e.g. Y87.0 included here) and/or exclusion criteria. Data may also be subject to periodic updates occurring after the original publication date.

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Methods

Crude rates
A crude rate provides information on the number of events relative to the population ‘at risk’ (for example, the entire population) in a specified period based on the Australian estimated resident population for the relevant analysis year. No age adjustments are made when calculating such a rate. Crude rates are used throughout this publication and expressed per 100,000 population.

Age-specific rates
Age-specific rates are calculated by dividing the number of events (for example, deaths) in each specified age group, by the total population at risk of the event in the same age group. Where age-specific rates are reported they are expressed per 100,000 population.

Age-standardised rates
Age-standardised rates are incidence rates that enable comparisons between populations that have different age structures and over time as the age structure of the population of interest may change. This effectively removes the influence of the age structure on the summary rate—it is the overall death rate that would have prevailed in the standard population if it had experienced at each age the death rates of the population under study.

Direct standardisation was used in this report. To calculate age-standardised rates, age-specific rates (grouped in 5-year intervals) were multiplied against a standard population. Directly age-standardised rates were adjusted using the current Australian standard population (that is, the non-recast Australian estimated resident population (ERP) as at 30 June 2001).

Rates are expressed as per 100,000 per population years.

Standardised mortality ratio
Standard mortality ratio (SMR) is a widely recognised measure used to account for differences in age structures when comparing death rates between populations. This method of standardisation can be used when analysing relatively rare events (i.e. where number of deaths is less than 25 for the analysed time period) (Curtin and Klein, 1995). The SMR has been used in the analysis of Australian Defence Force (ADF) deaths by suicide. It is used to control for the fact that the 3 ADF service status groups have a younger age profile than the Australian population, and rates of suicide vary by age in both the study populations and the Australian population. The SMRs control for these differences, enabling comparisons of suicide counts between the 3 service status groups and Australia without the confounding effect of differences in age. The SMR is calculated as the observed number of events (deaths by suicide) in the study population divided by the number of events that would be expected if the study population had the same age and sex specific rates as the as the comparison population.

Geography
Geographic location data are based on the area of usual residence of the deceased in the NMD or admitted patient in the NHMD. These data are specified using Statistical Area Level 2 (SA2) of the Australian Bureau of Statistics (ABS) Australian Statistical Geography Standard (ASGS) Edition 2016 for all states and territories. From 2016–17, the area of usual residence in the NHMD was voluntarily provided by some jurisdictions in the form of a Statistical Area level 1 (SA1).

Remoteness areas
Data for remoteness areas are based on a person’s usual residence, rather than where they died (NMD) or received treatment (NHMD). Data by remoteness are aligned to the 2016 Australian Statistical Geography Standard (ASGS) Remoteness Area Structure. Correspondence files are sourced from Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas (ABS cat. no. 1270.0.55.001). The 2016 ASGS Remoteness Structure categorises geographic areas in Australia into 5 classes of remoteness areas based on their relative access to services using the Accessibility/Remoteness Index of Australia which is, in turn, derived by measuring the road distance of a location from the nearest urban centre. The 5 classes are: Major cities, Inner regional, Outer regional, Remote, and
Very remote. See the Australian Statistical Geography Standard (ASGS): Remoteness Structure, 2016 - external site opens in new window for further information on Remoteness areas including details of the nature of the changes between the ASGS 2011 and ASGS 2016.

**Socioeconomic status**

The Socio-Economic Indexes for Areas (SEIFA) is a suite of 4 summary measures, developed by the ABS based on Census data that ranks geographic areas across Australia in terms of their relative socioeconomic advantage and disadvantage. The SEIFA index used is the 2016 SEIFA Index of Relative Socioeconomic Disadvantage (IRSD) for use at Statistical Area Level 2 except for NHMD 2012-13 to 2016-17 data which uses the 2011 SEIFA IRSD.

The IRSD includes only measures of relative disadvantage. A low score indicates greater disadvantage in general (for example, an area has many households with low income, many people with no qualifications and many people working in low skill occupations). A high score indicates a relative lack of disadvantage in general (for example, an area has few households with low incomes, few people with no qualifications and few people working in low skilled occupations). It is important to understand that a high score reflects a relative lack of disadvantage rather than advantage and that the IRSD relates to the average disadvantage of all people living in a geographic area and does not reflect the socioeconomic status of all individuals living within the area.

Population-based Australian cut-offs for SEIFA quintiles have been used in this report. Population-based quintiles are calculated by dividing SEIFA areas into 5 equal groups in such a way that the population in each group is approximately equal. As SEIFA measures the characteristics of an area rather than individuals, the population in the most disadvantaged population-based quintile (‘1—Lowest’) is the 20% of the national population residing in the most disadvantaged areas, rather than the most disadvantaged 20% of the population.

See the Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA) Australia, 2016 - external site opens in new window for further information on SEIFA.

**Primary Health Network**

Primary Health Networks (PHNs) were established in 2015 by the Department of Health to commission medical services and improve the coordination of care for patients across specific geographic areas (PHN areas). There are 31 PHN areas that cover the whole of Australia.

Statistics for PHN areas are derived by aligning deaths or hospitalisations area of usual residence data at Statistical Area Level 2 (SA2) to the 2017 PHN structure using ABS correspondence files, sourced from Australian Statistical Geography Standard (ASGS): Volume 3 - Non ABS Structures, July 2018 (ABS cat. no. 1270.0.55.003) - external site opens in new window.

**Statistical Areas**

Statistical Areas are a geographic classification defined by the Australian Bureau of Statistics. They encompass 4 levels, with increasing size and population: Statistical Areas Level 1 (SA1s); Statistical Areas Level 2 (SA2s); Statistical Areas Level 3 (SA3s); and Statistical Areas Level 4 (SA4).

Deaths by suicide and hospitalisations for intentional self-harm data at Statistical Area Level 2 (SA2) were aligned to Statistical Area Level 3 (SA3) and 4 (SA4) geographies based on the 2016 Australian Statistical Geography Standard (ASGS) structure. Correspondence files are sourced from Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas (ABS cat. no. 1270.0.55.001) - external site opens in new window.

**Using confidence intervals to test for statistical significance**

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 the analysis of deaths by suicide in Australian Defence Force personnel, 95% confidence intervals (CIs) are provided for each standardised mortality ratio to indicate the level of uncertainty around these estimates due to random fluctuations in the number of deaths by suicide over time. Estimates produced using low numbers can be sensitive to small changes in numbers of deaths over time and will therefore have wide CIs. 95% CIs are provided within this report as they may account for the variation in absolute numbers of deaths by suicide over time (related to the small sample size). It is important to note that there are other sources of uncertainty, such as linkage error, that are not captured by the provided CIs.

Use of CIs is the simplest way to test for significant differences between service groups and Australian comparison groups. For the purpose of this monitoring site, differences are deemed to be statistically significant if CIs do not overlap with 1.0 in the case of an SMR. The CIs in this report cannot be used to determine the significance of differences over time between overlapping 3-year time periods.

**References**


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Notes
Latest data updates
For information on future planned updates to the publication see Data update schedule.

13 July 2023
• Data from suicide registers

7 July 2023
• Suicidal and self-harming thoughts and behaviours among LGBTIQ+ Australians
• Ambulance attendances: suicidal and self-harm behaviours

15 June 2023
• Data from suicide registers

16 May 2023
• Data from suicide registers

6 April 2023
• Impact of suicide among Aboriginal and Torres Strait Islander Australians
• Ambulance attendances: suicidal ideation and self-harm behaviours
• Deaths by suicide among people who used disability service
• Burden of disease studies - Suicide & self-inflicted injuries
• Data from suicide registers

17 February 2023
• Data from suicide registers

17 January 2023
• Data from suicide registers

12 December 2022
• ANU paper: Spatiotemporal Analysis of Suicide Deaths 2001 - 2020

6 December 2022
• Australian Defence Force suicide monitoring

18 November 2022
• Data: Deaths by Suicide in Australia

4 November 2022
• Data from suicide registers

5 October 2022
• Data from suicide registers

8 September 2022
Data from suicide registers

5 August 2022

Australian prevalence estimates of suicidal behaviours

26 July 2022

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Behaviours & risk factors - Longitudinal analysis of income uncertainty & suicide (MADIP data asset)

Intentional self-harm hospitalisations 2020-21

Ambulance attendances - suicidal and self-harm behaviours

Research & information | Releases | Consultations - Data Requirements for the Portal

8 July 2022

Data from suicide registers

COVID-19 - The use of mental health services, psychological distress, loneliness, suicide, ambulance attendances and COVID-19

Australia's health 2022: Suicide & intentional self-harm

8 June 2022

Data from suicide registers

27 April 2022

COVID-19 - The use of mental health services, psychological distress, loneliness, suicide, ambulance attendances and COVID-19

3 February 2022

Data from suicide registers

9 December 2021

COVID-19 - The use of mental health services, psychological distress, loneliness, suicide, ambulance attendances and COVID-19

Research & information | Releases | Featured Reports - A scoping review of analytic methods used within the peer reviewed literature

Research & information | Releases | Featured Reports - Addendum | Suicide mortality in Australia: Estimating and projecting monthly variation and trends from 2007 to 2018 and beyond

Research & information | Releases | Consultations - Consultation with young people - Suicide & self-harm monitoring website

8 December 2021

Ambulance attendances: suicidal and self-harm behaviours

Research & information | Releases | Featured Reports - Patterns of suicide in the context of COVID-19: Evidence from three Australian states

4 November 2021

Data from suicide registers

The health impact of suicide and self-inflicted injuries in Australia, 2019

15 October 2021

Ambulance attendances: suicidal and self-harm behaviours

Behaviours & risk factors - Social factors & suicide (MADIP data asset)

COVID-19 - The use of mental health services, psychological distress, loneliness, suicide, ambulance attendances and COVID-19

30 September 2021

Deaths by suicide in Australia, Populations & age groups, Behaviours & Risk Factors [ABS Causes of Death 3303.0]

Populations & age groups - Australian Defence Force suicide monitoring

Data from suicide registers

Geography - Intentional self-harm hospitalisations by local areas

1 September 2021

Data from suicide registers

20 July 2021
Deaths by suicide in Australia - Deaths by suicide over time
Data from suicide registers
COVID-19 - The use of mental health services, psychological distress, loneliness, suicide, ambulance attendances and COVID-19
Ambulance attendances: suicidal and self-harm behaviours
Populations & age groups - Suicide & Indigenous Australians
Intentional self-harm hospitalisations (all pages excluding Intentional self-harm hospitalisations by local areas
Geography - International estimates of death by self-harm

30 March 2021
- Victoria & New South Wales Suicide Register data
- The use of mental health services, psychological distress, loneliness, suicide, ambulance attendances and COVID-19

18 November 2020
- Mortality data; Geography - Suicide by PHN areas
- Victoria and New South Wales Suicide Register data; COVID-19 - Data from suicide registers

9 November 2020
- Mortality data; Death by suicide in Australia; Populations & age groups; Geography; Behaviours & risk factors

9 October 2020
- Populations & age groups - Australian Defence Force suicide monitoring

Amendments
28 July 2022
- Ambulance attendances - Ambulance attendances: suicidal and self-harm behaviours

9 November 2020
- Populations & age groups - Suicide among young people.

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Glossary

Aboriginal or Torres Strait Islander: A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander. See also Indigenous.

Additional diagnosis: The diagnosis of a condition or recording of a complaint—either coexisting with the principal diagnosis or arising during an episode of admitted patient care (hospitalisation)—that requires the provision of care. Multiple diagnoses may be recorded.

ADF personnel: Serving, reserve and ex-serving members of the Australian Defence Force; civilian personnel employed by the Department of Defence are excluded.

Admission: An admission to hospital. The term hospitalisation is used to describe an episode of hospital care that starts with the formal admission process and ends with the formal separation process.

Administrative data collection: A data set that results from the information collected for the purposes of delivering a service or paying the provider of the service. This type of collection is usually complete (all in-scope events are collected), but it may have limitations for population-level analysis because the data are collected primarily for an administrative purpose.

Age structure: The relative number of people in each age group in a population.

Age-specific rate: The number of events for a specified age group over a specified period (e.g. calendar or financial year), divided by the total population in that age group. Reported as number per 100,000. The numerator and denominator relate to the same age group.

Age-standardised rates: are incidence rates that enable comparisons to be made between populations that have different age structures. The age structures of the different populations are converted to the same ‘standard’ structure, and then the rates that would have occurred with that structure are calculated and compared. Rates are expressed as per 100,000 per population years.

Associated cause(s) of death: All causes of death listed on the death certificate, other than the underlying cause of death. They include the immediate cause, any intervening causes, and conditions which contributed to the death but were not related to the disease or condition causing the death.

Attributable burden: The disease burden attributed to a particular risk factor. It is the amount of burden that could be avoided if the risk factor were removed or reduced to the lowest possible exposure.


Burden of disease: The quantified impact of a disease, injury or risk factor on a population, using the disability-adjusted life year (DALY) measure. One DALY is one year of ‘healthy life’ lost due to illness and/or death. The more DALY associated with a disease or injury, the greater the burden. The DALY is produced by combining the non-fatals and fatal burden together. People generally experience more burden as they age.

Cause(s) of death: All diseases, morbid conditions or injuries that either resulted in or contributed to death—and the circumstances that produced any such injuries—that are entered on the death certificate. The coding of causes of death produces an underlying cause of death and, for many deaths, one or more associated cause(s) of death. See also multiple causes of death.

Child: A person aged 0-14 years.

Comorbidity: The occurrence of 2 or more health conditions in a person at one time. While the coexistence of these multiple conditions may be unrelated, in many instances there is some association between them.

Confidence interval: A statistical term describing a range (interval) of values within which we can be ‘confident’ that the true value lies, usually because it has a 95% or higher chance of doing so.

Contemporary ex-serving (Australian Defence Force): Australian Defence Force members who have had at least 1 day of full-time or reserve service on or after 1 January 2001, and have since been discharged from the Australian Defence Force.
**current serving (Australian Defence Force):** Australian Defence Force members who have had at least 1 day of full-time service on or after 1 January 2001, and are still serving in the Australian Defence Force.

**crude rate:** The crude rate is the number of events recorded during a specified time period (e.g. calendar year) per 100,000 estimated resident population.

**DALY:** See **disability-adjusted life year**.

**data linkage:** The process of combining (linking) information from two or more different data sources that are believed to relate to the same entity (for example, the same individual or the same institution). This linkage can yield more information about the entity and, in certain cases, provide a time sequence—helping to ‘tell a story’, show ‘pathways’ and perhaps unravel cause and effect. The term is used synonymously with ‘record matching’ and ‘data integration’.

**death:** Any death which occurs in, or en route to Australia and is registered with a State or Territory Registry of Births, Deaths and Marriages.

**determinant:** Any factor that influences how likely a population or individual will stay healthy or become ill or injured. Factors that increase the chances of ill health are known as risk factors, while those that promote good health are protective factors. Services or other programs that aim to improve health are usually not included in this definition.

**disability-adjusted life year (DALY):** A measure of healthy life lost, either through premature death or living with disability due to illness or injury. It is the basic unit used in burden of disease and injury estimates.

**episode of care:** The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only one care type (see care type and separation).

**estimated resident population (ERP):** The official ABS estimate of the Australian population. The ERP is derived from the 5-yearly Census counts and is updated quarterly between each Census. It is based on the usual residence of the person. Rates are calculated per 1,000 or 100,000 mid-year (30 June) ERP.

**external cause:** The environmental event, circumstance, or condition that is regarded as the cause of injury, poisoning and other adverse effect.

**fatal burden:** The quantified impact on a population of dying prematurely due to disease or injury, measured by years of life lost (YLL).

**hospitalisation:** An episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (e.g. from acute care to rehabilitation).

**incidence:** Incidence is a measure of the number of new cases of a characteristic that develop in a population in a specified time period; whereas prevalence is the proportion of a population who have a specific characteristic in a given time period, regardless of when they first developed the characteristic.

**incidence rates:** incidence rates for death by suicide refers to the number of suicides during a specified period over the population within the same period. Rates are expressed as per 100,000 per population years.

**Index of Relative Socioeconomic Disadvantage (IRSD):** One of the set of **Socio-Economic Indexes for Areas (SEIFA)** for ranking the average socioeconomic conditions of a population in a geographic area. The IRSD was developed by the ABS for use at Statistical Area Level 2 and summarises attributes of the population that indicate disadvantage, such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations.

**Indigenous:** A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander. See also **Aboriginal or Torres Strait Islander**.

**intentional self-harm:** Includes attempts to suicide, as well as cases where people have intentionally hurt themselves, but not necessarily with the intention of suicide (e.g. acts of self-mutilation).

**International Statistical Classification of Diseases and Related Health Problems (ICD):** The World Health Organization’s internationally accepted classification of death and disease. The 10th Revision (ICD-10) is currently in use. The ICD-10-AM is the Australian Modification of the ICD-10; it is used for diagnoses and procedures recorded for patients admitted to hospitals.

**monitoring (of public health):** A process of keeping a regular and close watch over important aspects of the public’s health and health services through various measurements, and then regularly reporting on the situation, so that the health system and society more generally can plan and respond accordingly. The term is often used interchangeably with surveillance, although surveillance may imply more urgent watching and reporting, such as the surveillance of infectious diseases and their epidemics.

**morbidity:** The ill health of an individual and levels of ill health in a population or group.

**mortality:** Number or rate of deaths in a population during a given time period.

**multiple causes of death:** All causes listed on the death certificate. This includes the **underlying cause of death** and all **associated causes of death**. This information is useful for describing the role of all diseases involved in deaths, where there is more than one cause contributing to the death. For deaths where the underlying cause was identified as an external cause multiple causes include circumstances of injury, the nature of injury as well as any other conditions reported on the death certificate.
non-fatal burden: The quantified impact on a population of ill health due to disease or injury, measured as years lived with disability (YLD).

non-Indigenous: People who have declared that they are not of Aboriginal or Torres Strait Islander descent.

prevalence: The number or proportion (of cases, instances, and so forth) in a population at a given time.

prevention (of suicide): Action to reduce or eliminate the onset, causes, complications or recurrence of suicide.

Primary Health Networks (PHNs): Primary Health Networks were established on 1 July 2015 by the Australian Government Department of Health. They are independent primary health care organisations that commission services and are operated by not-for-profit companies, informed by clinical councils and community advisory committees.

Primary Health Network (PHN) areas: PHNs connect health services across a specific geographic area (a PHN area), with the boundaries defined by the Australian Government Department of Health. There are 31 PHN areas that cover the whole of Australia.

principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care (hospitalisation). Diagnoses are recorded using the relevant edition of the International statistical classification of diseases and related health problems, 10th revision, Australian modification (ICD-10-AM).

protective factors: Factors that enhance the likelihood of positive outcomes and reduce the chance of negative consequences from exposure to risk.

psychological distress: Psychological distress is commonly measured using the Kessler Psychological Distress Scale—10 items (K10). The K10 questionnaire was developed to yield a global measure of psychosocial distress, based on questions about people’s level of nervousness, agitation, psychological fatigue and depression in the past four weeks. The Kessler 6 Scale is an abbreviated version of K10.

psychosocial factors: Social processes and social structures which can have an interaction with individual thought, behaviour and/or health outcomes.

public health: Activities aimed at benefiting a population, with an emphasis on prevention, protection and health promotion as distinct from treatment tailored to individuals.

quintile: A group derived by ranking the population or area according to specified criteria and dividing it into five equal parts. Commonly used to describe socioeconomic areas.

rate: A rate is one number (the numerator) divided by another number (the denominator). The numerator is commonly the number of events in a specified time. The denominator is the population ‘at risk’ of the event. Rates (crude, age-specific and age-standardised) are generally multiplied by a number such as 100,000 to create whole numbers.

remoteness area: A classification of the remoteness of a location using the Australian Statistical Geography Standard Remoteness Area Structure (2016) which divides Australia into 5 classes of remoteness based on their relative access to services using the Accessibility and Remoteness Index of Australia which is, in turn, derived by measuring the road distance of a location from the nearest urban centre. The 5 Remoteness Areas are Major cities, Inner regional, Outer regional, Remote and Very remote.

reserve (Australian Defence Force): Australian Defence Force members who have had at least 1 day of reserve service on or after 1 January 2001.

risk factor: Any attributes, characteristics or exposures that increase the likelihood of a person developing a health condition or experiencing an event.

separation (from hospital): An episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute care to rehabilitation). Separation also means the process by which an admitted patient completes an episode of care either by being discharged, dying, transferring to another hospital or changing type of care.

social determinants of health: The circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies and politics.

socioeconomic status: The social and economic position of an individual or group within the larger society. In this monitoring site, socioeconomic status is reported using the Socio-Economic Indexes for Areas, typically for 5 groups, from the most disadvantaged (lowest socioeconomic status areas) to the least disadvantaged (highest socioeconomic status areas).

Socio-Economic Indexes for Areas (SEIFA): A set of indexes, created from Census data, that represent the socioeconomic status of geographical areas in Australia according to their relative socioeconomic advantage and disadvantage. The SEIFA index used in this report is the Index of Relative Socioeconomic Disadvantage (IRS). It is important to understand that the index value reflects the overall or average level of disadvantage of the population of an area; it does not reflect the socioeconomic status of individuals living within the area.

Socio-Economic Indexes for Areas (SEIFA) quintiles: Population-based quintiles are calculated by dividing SEIFA areas into 5 equal groups in such a way that the population in each group is approximately equal. As SEIFA measures the characteristics of an area rather than individuals, the population in the most disadvantaged population-based quintile (‘1—Lowest’) is the 20% of the national population residing in the most disadvantaged areas, rather than the most disadvantaged 20% of the population.
statistical areas: A geographical classification defined by the ABS. They encompass four levels, with increasing size and population: Statistical Areas Level 1 (SA1s); Statistical Areas Level 2 (SA2s); Statistical Areas Level 3 (SA3s); and Statistical Areas Level 4 (SA4s).

statistical significance: A statistical measure indicating how likely the observed difference or association is due to chance alone. Rate differences are deemed to be statistically significant when their confidence intervals do not overlap, since their difference is greater than what could be explained by chance.

suicidal ideation: Serious thoughts about ending one’s own life.

suicidal behaviours: The collective term for suicidal ideation, suicide plans and suicide attempts.

suicide: An action intended to deliberately end one’s own life.

total burden: The sum of fatal burden (YLL) and non-fatal burden (YLD).

underlying cause of death: The disease or injury that initiated the train of events leading directly to a person’s death, or the circumstances of the accident or violence that produced the fatal injury. See also cause(s) of death and associated cause(s) of death.

usual residence: The area of the address at which the deceased lived or intended to live, for 6 months or more prior to death.

years lived with disability (YLD): The number of years of what could have been a healthy life that were instead spent in states of less than full health. YLD represent non-fatal burden.

years of life lost (YLL): The number of years of life lost due to premature death, defined as dying before the ideal life span. YLL represent fatal burden.
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Archived content
For the latest data, please see Data downloads.

The below data tables contain previously published data that have now been superseded.

Notes for archived data downloads

- National Hospital Morbidity Database—Intentional self-harm hospitalisations
  The estimated resident populations used in rates calculations throughout this data table have been revised in more recent updates.
- National Mortality Database—Suicide (ICD-10 X60-X84, Y87.0)
  The estimated resident populations used in rates calculations throughout this data table have been revised in more recent updates.

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