Mortality of People Using Mental Health Services and Prescription Medications

Analysis of 2011 data

4329.0.00.006

AUSTRALIAN BUREAU OF STATISTICS

EMBARGO: 11.30AM (CANBERRA TIME) FRIDAY 08 SEPTEMBER 2017

ABS Catalogue No. 4329.0.00.006

Produced by the Australian Bureau of Statistics.

INQUIRIES

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070.

CONTENTS

CHAPTER 1: INTRODUCTION AND KEY FINDINGS

INTRODUCTION

The World Health Organization states that "there is no health without mental health", highlighting the association between mental and physical health (Endnote 1). People living with mental illness have poorer physical health and higher rates of mortality, compared with people with good mental health (Endnote 2).

Understanding the interplay between mental and physical health is important when considering mortality outcomes of people with poor mental health. Poor mental health is a risk factor for chronic physical health conditions, while conversely, people with chronic physical health conditions are at risk of poor mental health (Endnote 3). Given this interplay, there are a variety of reasons that may lead a person to access mental health-related treatments. The particular option(s) a person follows may be influenced by a range of factors, such as their diagnosis, the type and/or severity of their condition(s), availability and costs of treatment options as well as personal preference.

Australia's mental health system comprises different treatment paths and options. The Australian Government funds a range of mental health-related services through the Medicare Benefits Schedule (MBS), the Pharmaceutical Benefits Scheme (PBS) and the Repatriation Pharmaceutical Benefits Scheme (RPBS). The Australian Government also funds a range of programs and services which provide support for people with mental illness (such as income support and disability services) (Endnote 4). Additionally, state and territory governments fund and deliver public sector mental health services that provide specialist care for people with severe mental illness, such as specialised mental health care delivered in public hospitals, community mental health care services, and residential mental health care services (Endnote 4). Also available are a range of mental health-related services provided by non-government sector organisations such as crisis support services.

Data in this publication are sourced from the Mental Health Services-Census-Mortality Integrated Dataset which includes information about MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications, mortality information and 2011 Census of Population and Housing (Census) information. The cohort of persons who accessed these services or medications during the calendar year 2011 was linked to death records for the 13-month period following the 2011 Census to enable analysis of the characteristics and mortality outcomes of these persons. Given persons aged 75 years and over account for the majority of deaths in Australia, information on mortality for the total population (that is, all ages) may mask results for younger age groups. Data in this publication are therefore presented for persons aged 15-74 years as well as persons of all ages.

MBS subsidised mental health-related services are those provided by psychiatrists, general practitioners (GPs), clinical psychologists, other psychologists and other allied health professionals. PBS subsidised mental health-related prescription medications comprise antipsychotics, anxiolytics, hypnotics and sedatives, antidepressants, and psychostimulants, agents used for ADHD and nootropics. For brevity, the term 'mental health-related treatments' is frequently used in this publication to refer to these services and medications. See Appendix 1 and Appendix 2 for more detail about mental health-related services and prescription medications listed on the MBS and PBS.

KEY FINDINGS

Characteristics of deaths of persons who accessed mental health-related treatments in 2011

Persons of all ages

- There were 3.2 million persons who accessed MBS and/or PBS subsidised mental health-related services or prescription medications ('mental health-related treatments') in 2011.
- There were 153,451 deaths registered in Australia in the period 10 August 2011 to 27 September 2012.
- Persons who accessed mental health-related treatments accounted for 49.4% of all deaths in this period (75,858 deaths).
- The standardised death rate for persons who accessed mental health-related treatments in 2011 was almost twice (1.9 times) that of the standardised death rate for the total Australian population (11.4 deaths per 1,000 population compared with 6.1 deaths per 1,000 population respectively).
- Males who accessed mental health-related treatments in 2011 had a standardised death rate 2.3 times higher than that of all males in Australia (16.4 deaths per 1,000 population compared with 7.3 deaths per 1,000 population respectively).
- Females who accessed mental health-related treatments in 2011 had a standardised death rate 1.7 times higher than that of all females in Australia (8.6 deaths per 1,000 population compared with 5.1 deaths per 1,000 population respectively).
- The standardised death rate for males who accessed mental health-related treatments in 2011 was almost twice (1.9 times) that of females who accessed mental health-related treatments in 2011 (16.4 deaths per 1,000 population compared with 8.6 deaths per 1,000 population respectively).
- Consistently higher rates of mortality amongst persons who accessed mental health-related treatments in 2011 were evident across a range of other socio-demographic characteristics such as age, geography, socio-economic status and cause of death when compared with the total Australian population.

Persons aged 15-74 years

- Differences in mortality rates between persons who accessed mental health-related treatments in 2011 and the total Australian population were even greater for persons aged 15-74 years, compared with persons of all ages.
- The standardised death rate for persons aged 15-74 years who accessed mental health-related treatments was 2.4 times higher than the standardised death rate for the total Australian population of the same age (7.4 deaths per 1,000 population compared with 3.0 deaths per 1,000 population respectively).
- The standardised death rate for males aged 15-74 years who accessed mental health-related treatments in 2011 was almost three times (2.9) higher than that of all males of the same age in the total Australian population (11.2 deaths per 1,000 population compared with 3.8 deaths per 1,000 population).
- The standardised death rate for females aged 15-74 years who accessed mental health-related treatments in 2011 was 2.2 times higher than that of all females of the same age in the total Australian population (5.1 deaths per 1,000 population compared with 2.3 deaths per 1,000 population).
- The standardised death rate for males aged 15-74 years who accessed mental health-related treatments in 2011 was more than twice (2.2 times) that of females of the same age who accessed mental health-related treatments in 2011 (11.2 deaths per 1,000 population compared with 5.1 deaths per 1,000 population respectively).

Causes of death

- The leading cause of death for persons of all ages who accessed mental health-related treatments in 2011 was Ischaemic heart disease (12.3% of all deaths of persons who accessed mental health-related treatments) followed by Lung cancer (6.7%). Amongst the total Australian population, Ischaemic heart disease was also the leading cause of death (14.1%) while Lung cancer was the fourth leading cause of death (5.9%).
- The standardised death rate for Ischaemic heart disease for persons who accessed mental health-related treatments was 122.2 deaths per 100,000 population, one and a half times higher than that of the total Australian population (84.0 deaths per 100,000 population).
- For persons aged 15-74 years who accessed mental health-related treatments in 2011, the leading cause of death was Lung cancer (11.1% of all deaths of persons aged 15-74 years who accessed mental health-related treatments) followed by Ischaemic heart disease (7.5%).
- The standardised death rate for Lung cancer for persons aged 15-74 years who accessed mental health-related treatments was 74.8 deaths per 100,000 population, more than two and a half times (2.6) greater than that of the total Australian population of the same age (29.1 deaths per 100,000 population).
- Of the 3.4 million persons in Australia aged 15-74 years and over who reported having a mental or behavioural condition in 2014-15, almost one quarter (23.9%) smoked currently, compared with 16.3% of all persons aged 15-74 years (National Health Survey, 2014-15).
- The standardised death rate for Intentional self-harm for persons who accessed mental health-related treatments was more than three times (3.3) higher than the standardised death rate for Intentional self-harm amongst the total Australian population (34.4 deaths per 100,000 population compared with 10.5 deaths per 100,000 population respectively).

KEY FIGURES – NUMBER OF DEATHS, POPULATION COUNTS AND DEATH RATES

Persons of all ages and persons aged 15-74 years

	Persons who accessed mental health-related treatments in 2011(a)			Total Australian population			
	Deaths(b)	Population	Death rate(c)	Deaths(b)	Population(d)	Death rate(c)	Rate ratio(e)
	no.	no.	rate	no.	no.	rate	ratio
Persons of all ages							
Males	35 457	1 229 566	16.4	78 428	10 634 012	7.3	2.3
Females	40 401	1 961 281	8.6	75 023	10 873 706	5.1	1.7
Persons	75 858	3 190 847	11.4	153 451	21 507 719	6.1	1.9
Persons aged 15-74 years							
Males	14 790	973 753	11.2	32 897	7 925 847	3.8	2.9
Females	11 584	1 591 138	5.1	20 391	8 052 975	2.3	2.2
Persons	26 375	2 564 891	7.4	53 289	15 978 819	3.0	2.4

(a) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.

(b) Deaths registered between 10 August 2011 and 27 September 2012 inclusive.

(c) Deaths per 1,000 population, age standardised to the 2001 Australian population.

(d) 2011 Census counts.

(e) Ratio calculated as death rate for persons who accessed mental health-related treatments divided by death rate for total Australian population.

DATA QUALITY CONSIDERATIONS

There are a number of factors that should be considered when interpreting information presented in this publication.

The Mental Health Services-Census-Mortality Integrated Dataset on which analysis is based includes a subset of persons who accessed the mental health system in Australia; that is, persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.

Information on persons who accessed other mental health-related services such as state and territory government funded services (for example, mental health care services delivered in public hospitals) are not captured in the dataset, although recipients of these services may have also accessed MBS and/or PBS subsidised mental health-related treatments. Also not captured is information about persons who accessed services through the Aboriginal Health Services Program and medications subsidised through the Repatriation Pharmaceutical Benefits Scheme (RPBS). Nevertheless, MBS subsidised mental health-related services and PBS subsidised mental health-related prescription medications comprise a significant component of Australia's mental health system, with around 8 million mental health-related services and more than 20 million prescriptions for mental health-related medications accessed by Australians in 2011.

Consultations with general practitioners (GPs) that may have involved discussion of mental health issues but were not recorded as mental-health related services were not captured in the dataset. People who accessed mental health-related medications in 2011 for whom no mental health-related service was recorded in 2011 should therefore not be considered to have obtained the medication without a prescription. Note that persons with poor mental health may have co-existing physical health conditions and may access GP consultations to discuss multiple aspects of their health.

Mental health-related medications may not always be prescribed for mental health-related reasons; for example, the antidepressant nortriptyline may be prescribed to assist smoking cessation. Additionally, while persons may have had scripts filled for mental health-related medications, the dataset cannot indicate actual use of the medication.

It should also be noted that a person's use of mental health-related services or medications does not imply a diagnosis of a mental health condition. For information on the 4.0 million people who reported having a mental or behavioural condition in Australia in 2014-15 see National Health Survey: Mental Health and co-existing physical health conditions, Australia, 2014-15 (cat. no. 4329.0.00.004).

In addition, it is important to note that while results presented in this publication indicate a relationship between accessing mental health-related treatments and mortality rates, this does not necessarily imply causality. That is, while persons who accessed mental health-related treatments in 2011 were found to have higher rates of mortality, this should not be attributed to their access of mental health-related treatments per se. Instead, results highlight the complex interplay between mental and physical health and may imply some additional levels of risk that these persons may be exposed to. Further study to understand treatment patterns and underlying conditions which are being treated would be beneficial.

FUTURE OPPORTUNITIES

Results from analysis of the Mental Health Services-Census-Mortality Integrated Dataset provide new insights into mortality amongst persons who accessed MBS subsidised mental health-related services and PBS subsidised mental health-related medications in Australia and will assist in informing mental health policy and programs.

A number of potential enhancements were identified during the course of the project. Implementation of the following options would improve understanding of the existing data and create opportunities for a wider scope of analysis, further maximising the value of existing public sector data for policy analysis, research, and statistical purposes:

- Given the wider scope of Australia's mental health system than MBS subsidised mental health-related services and PBS subsidised mental health-related medications, the potential inclusion of other sources of data beyond those recorded on the MBS and PBS, such as information on state and territory mental health-related services, would assist in providing a more complete picture of the provision of mental health-related services in Australia
- The inclusion in the dataset of a greater breadth of treatments listed on the MBS and PBS would facilitate greater understanding of the relationships between co-existing physical and mental health conditions
- The inclusion of more years of information from the source datasets (MBS, PBS and death registrations) would allow for longitudinal analysis as well as more cross-sectional analyses over time, while providing more detailed and reliable information on sequences and histories of treatments over a longer period. This would also address data quality issues associated with the existing dataset such as the potentially incomplete treatment histories for some people whose deaths occurred later in 2011-12 (and who may have accessed mental health-related treatments in 2012 which were not in scope of the existing dataset)
- The addition of data from population surveys (for example, the ABS National Health Survey) would provide information on whether a person has been diagnosed with a mental health condition (and physical health conditions) as well as provide information on associated topics of relevance such as behavioural risk factors (e.g. smoking status).

Despite complexities associated with creating and analysing the dataset, results show a strong pattern of differences in mortality outcomes between persons who accessed MBS and PBS subsidised mental health-related treatments compared with the Australian population overall.

CHAPTER 2: ABOUT THE MENTAL HEALTH SERVICES-CENSUS-MORTALITY INTEGRATED DATASET

The Mental Health Services-Census-Mortality Integrated Dataset builds upon the 2011 Mental Health Services-Census Data Integration project which was commissioned by the National Mental Health Commission and undertaken by the Australian Bureau of Statistics (ABS) in 2014-2016 to inform the National Review of Mental Health Programmes and Services.

The current project enhances the Mental Health Services-Census Integrated Dataset through the addition of mortality information sourced from the ABS Mortality, Enhanced Characteristics, Australia, 2011-12 dataset. Funding for this work was provided by the National Mental Health Commission.

Integrating a selected subset of data items from the Medicare Benefits Schedule (MBS), Pharmaceutical Benefits Scheme (PBS) and 2011 Census of Population and Housing has greatly increased the power of the data to support analysis of the circumstances and characteristics of people experiencing mental ill-health as they interact with the health care system. With the addition of mortality information the dataset can provide insights into characteristics and mortality outcomes of people accessing mental health-related treatments, contributing to the pool of data available in Australia to assist in the development and evaluation of mental health programs and support services now and into the future.

Deaths information in the dataset relate to deaths registered in Australia during the 13-month period following the 2011 Census; that is, between 10 August 2011 and 27 September 2012 inclusive. For brevity, this period is referred to as '2011-12' in commentary in this publication.

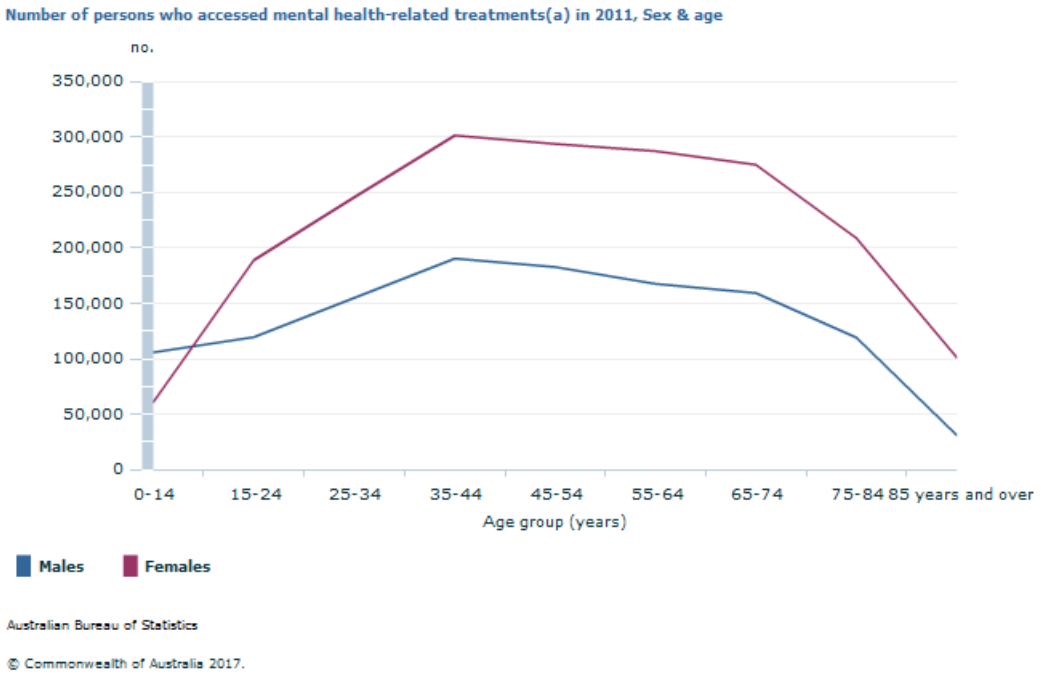
Census information included in the dataset provides insight into a range of socio-demographic characteristics including age, sex, remoteness, socio-economic disadvantage, labour force status and educational attainment.

The confidentiality of these data are protected by the Census and Statistics Act (1905) and the Privacy Act (1988). MBS and PBS information provided by the Department of Health and the Department of Human Services to the ABS is treated in the strictest confidence as is required by the National Health Act (1953) and the Health Insurance Act (1973). Information pertaining to death registrations draws extensively on information provided by state and territory Registrars of Births, Deaths and Marriages, and the Victorian Department of Justice, who manage the National Coronial Information System (NCIS). Confidentiality of these data are protected by the Census and Statistics Act (1905) and the Privacy Act (1988).

CHAPTER 3: PERSONS WHO ACCESSED MBS AND/OR PBS SUBSIDISED MENTAL HEALTH-RELATED TREATMENTS IN 2011

This chapter presents a broad summary of persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications ('mental health-related treatments') in 2011.

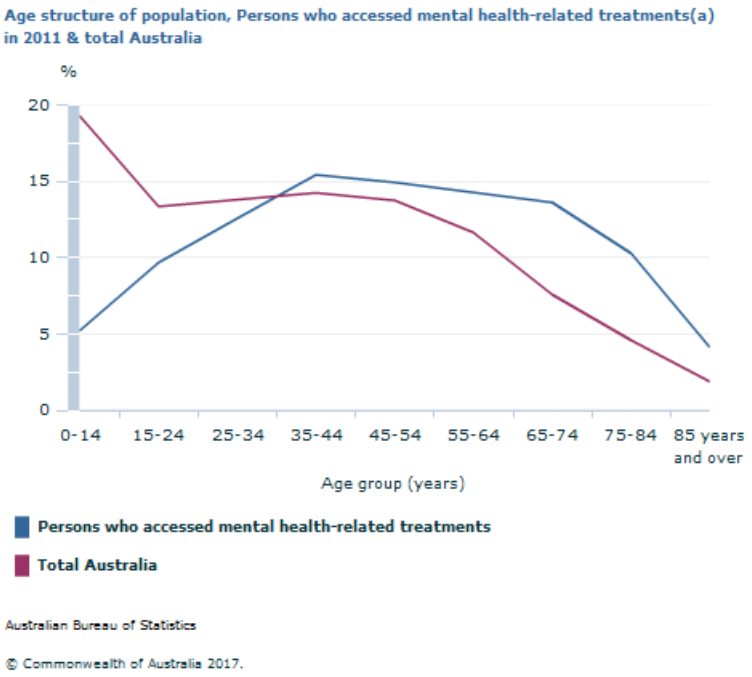
There were 3.2 million persons (14.8% of all Australians) who accessed mental health-related treatments in 2011. Overall, more females accessed mental health-related treatments than males: 2.0 million females (18.0% of all females) compared with 1.2 million males (11.6% of all males). Amongst both males and females the greatest numbers of persons who accessed mental health-related treatments were aged 35-54 years.



Footnote(s): *(a) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

The age structure of the population who accessed mental health-related treatments in 2011 was considerably older than that of the total Australian population, with a median age of 49 years compared with 37 years respectively. Of the 3.2 million people who accessed mental health-related treatments in 2011, 28% were aged 65 years or over (compared with 14% of the total Australian population) while only 15% were aged less than 25 years (compared with 33% of the total Australian population).



Footnote(s): *(a) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

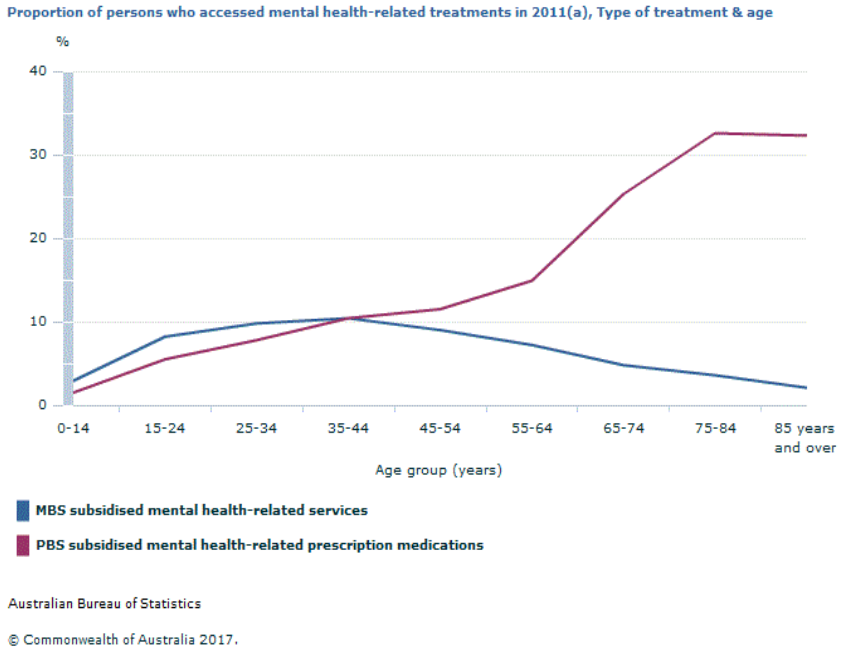
Of the 3.2 million persons who accessed mental health-related treatments in 2011, 1.5 million persons accessed MBS subsidised mental health-related services while 2.3 million persons accessed PBS subsidised mental health-related prescription medications (7.1% and 10.9% of the total Australian population respectively).

PERSONS WHO ACCESSED MBS AND/OR PBS SUBSIDISED MENTAL HEALTH-RELATED TREATMENTS IN 2011

Type of treatment	Number of persons	Proportion(a)
	no.	%
MBS subsidised mental health-related service		
Psychiatrist	295 478	1.4
General practitioner	1 223 434	5.7
Clinical psychologist	260 094	1.2
Other psychologist	438 217	2.0
Other allied health professional	45 607	0.2
Total persons who accessed MBS subsidised mental health-related services	1 536 511	7.1
PBS subsidised mental health-related prescription medication		
Antipsychotics	338 314	1.6
Anxiolytics	531 403	2.5
Hypnotics and sedatives	480 663	2.2
Antidepressants	1 659 481	7.7
Psychostimulants, agents used for ADHD and nootropics	81 382	0.4
Total persons who accessed PBS subsidised mental health-related prescription medications	2 346 536	10.9
Total persons who accessed MBS and/or PBS subsidised mental health-related treatments	**3 190 847**	**14.8**

(a) Proportion of the total 2011 Australian population (2011 Census).

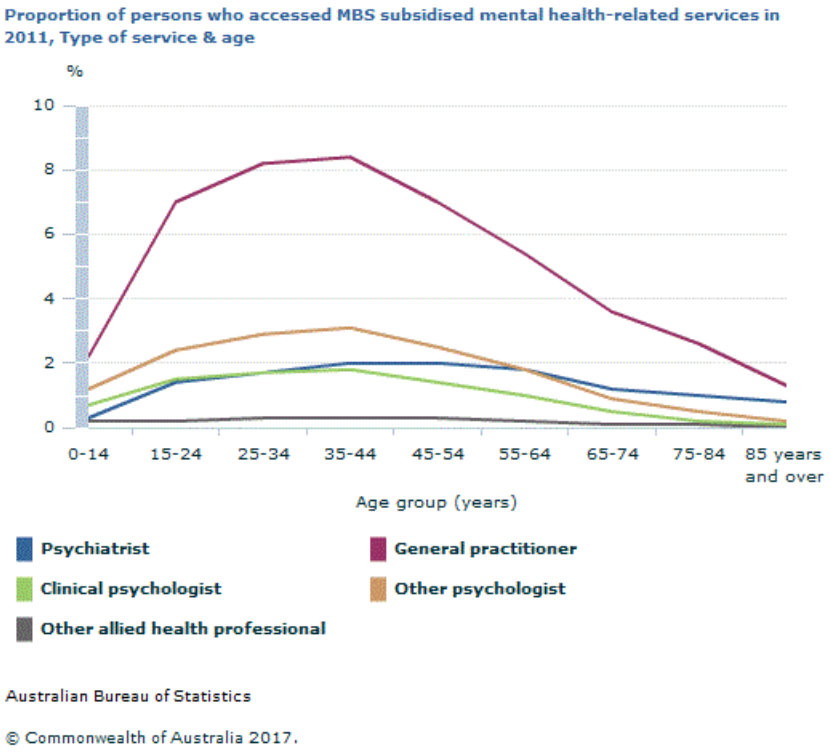
The proportion of persons who accessed mental health-related services and medications differed significantly across age groups. For MBS subsidised mental health-related services, rates of access were generally highest amongst people aged 25-54 years and lowest amongst children and older persons, while for PBS subsidised mental health-related medications rates of access increased with age.



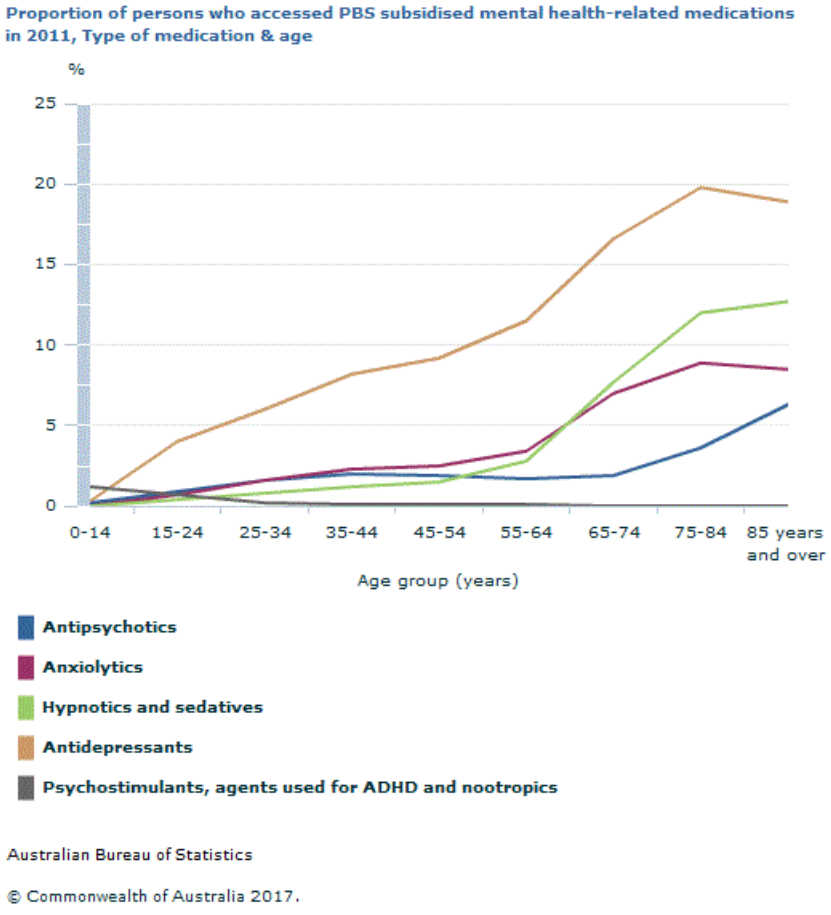
Footnote(s): *(a) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

In 2011 the most commonly accessed MBS subsidised mental health-related services were mental health-related consultations with general practitioners (1.2 million persons or 5.7% of the total Australian population), while antidepressants were the most commonly accessed PBS subsidised mental health-related prescription medications (1.7 million persons or 7.7% of the total Australian population).



Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*



Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

More information on the socio-demographic characteristics of people who accessed mental health-related treatments in 2011 is available in:

- Characteristics of People using Mental Health Services and Prescription Medications, 2011 (cat. no. 4329.0)
- Cultural and Linguistic Characteristics of People Using Mental Health Services and Prescription Medications, 2011 (cat. no. 4329.0.00.001)
- Housing Circumstances of People Using Mental Health Services and Prescription Medications, 2011 (cat. no. 4329.0.00.002)
- Patterns of Use of Mental Health Services and Prescription Medications, 2011 (cat. no. 4329.0.00.003)

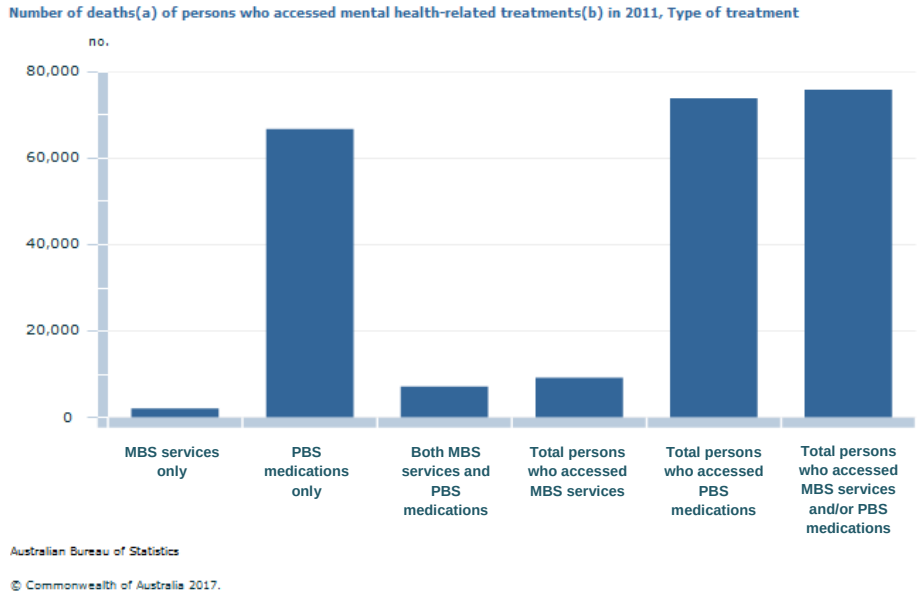
CHAPTER 4: CHARACTERISTICS OF DEATHS OF PERSONS WHO ACCESSED MBS AND/OR PBS SUBSIDISED MENTAL HEALTH-RELATED TREATMENTS IN 2011

This chapter reports on characteristics of deaths of persons who accessed MBS and/or PBS subsidised mental health-related services or prescription medications ('mental health-related treatments') in 2011, and draws comparisons against all deaths amongst the total Australian population. Readers whose main interest is deaths without reference to persons accessing mental health-related treatments should refer to Deaths, Australia (cat. no. 3302.0).

PERSONS OF ALL AGES

There were 153,451 deaths registered in Australia in 2011-12 (between 10 August 2011 and 27 September 2012 inclusive). Persons who accessed mental health-related treatments accounted for 49.4% of all deaths in this period (75,858 deaths).

Of the 75,858 deaths of persons who accessed mental health-related treatments, almost all had accessed PBS subsidised mental health-related prescription medications in 2011 (73,830 or 97.3%), while considerably fewer had accessed MBS subsidised mental health-related services (9,152 or 12.1%). Almost one in ten (7,124 or 9.4%) had accessed both mental health-related services and medications.



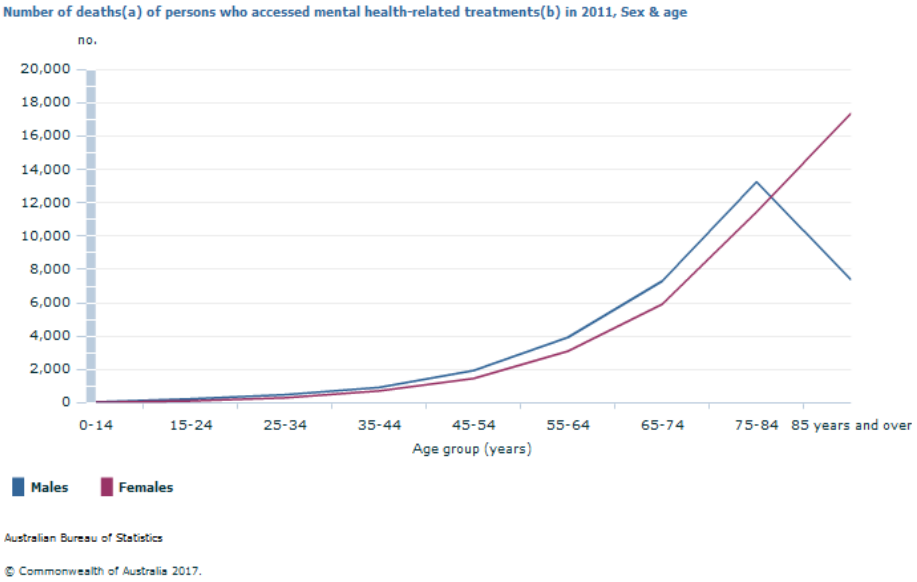
Footnote(s): *(a) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Age and sex

As would be expected, numbers of deaths of persons who accessed mental health-related treatments in 2011 increased with age, with deaths of persons aged 75 years and over accounting for around two-thirds (65.2%) of all deaths of persons who accessed mental health-related treatments in 2011 (similar to the proportion of deaths of persons aged 75 years and over amongst the total Australian population, of 64.9%).

Overall there were more deaths of females who accessed mental health-related treatments than males (40,401 compared with 35,457 respectively), reflecting, at least in part, the greater number of females who accessed mental health-related treatments in 2011 than males. The large difference between numbers of deaths of males and females aged 85 years and over who accessed mental health-related treatments can be attributed to higher life expectancy of females, with more deaths of males occurring at younger ages than females, similar to the pattern of age at death amongst the total Australian population.



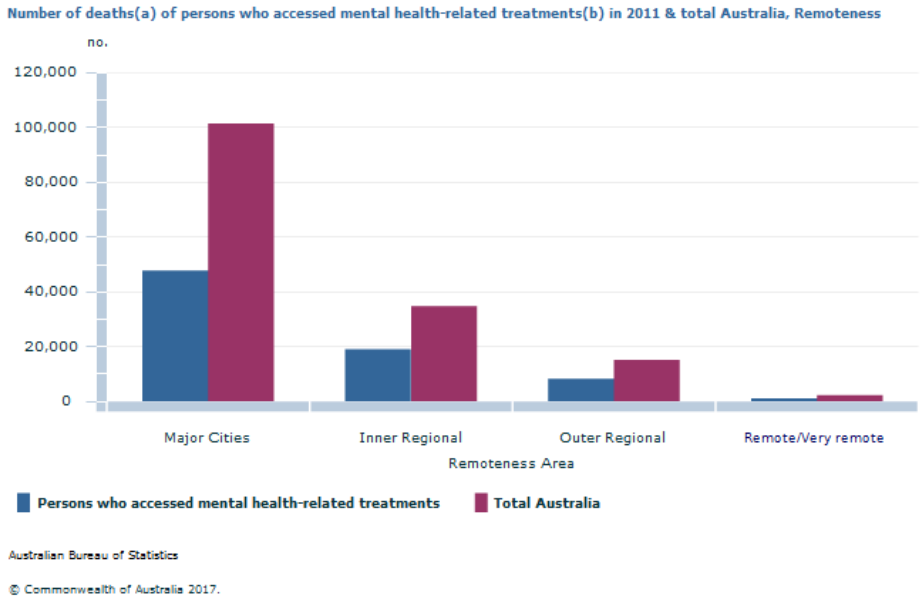
Footnote(s): *(a) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

State/territory and regional differences

Across states and territories, the number of deaths of persons who accessed mental health-related treatments reflected the distribution of the population across Australia, with the greatest number of deaths registered in New South Wales and the fewest in the Northern Territory and Australian Capital Territory.

Similarly, across Remoteness Areas, Major Cities accounted for the majority of deaths of persons who accessed mental health-related treatments (47,686 deaths or 62.9% of deaths amongst this population). Inner Regional areas of Australia accounted for one-quarter (18,942 deaths or 25.0%) of all deaths of persons who accessed mental health-related treatments in 2011-12 while Outer Regional areas accounted for 10.8% of all deaths in this population (8,206 deaths). Standardised death rates for persons who accessed mental health-related treatments for Remoteness Areas are presented in Chapter 5.



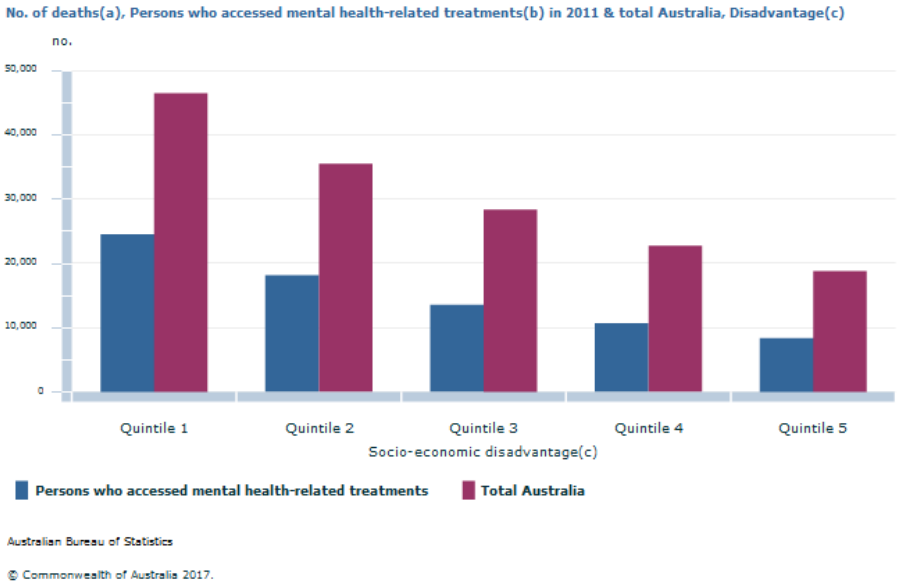
Footnote(s): *(a) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Socio-economic disadvantage

The Index of Relative Socio-economic Disadvantage measures socio-economic disadvantage within areas of Australia by combining a range of indicators including household income, family composition, labour force participation and education.

Of the 75,858 deaths of persons who accessed mental health-related treatments in 2011, around one-third (24,504 deaths or 32.3%) were deaths of persons living in most disadvantaged areas of Australia (Quintile 1 below), while around one in ten (8,376 deaths or 11.0%) were deaths of persons in least disadvantaged areas (Quintile 5). This pattern is consistent with that of deaths amongst the total Australian population, and reflects in part the higher death rates amongst people in areas of greater socio-economic disadvantage than amongst people in areas of less socio-economic disadvantage. Standardised death rates for persons who accessed mental health-related treatments by levels of socio-economic disadvantage are presented in Chapter 5.



Footnote(s): *(a) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011. (c) Index of Relative Socio-economic Disadvantage. A lower Index of Disadvantage quintile (e.g. Quintile 1) indicates an area with relatively greater disadvantage. A higher Index of Disadvantage (e.g. Quintile 5) indicates an area with a relative lack of disadvantage.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Labour force participation

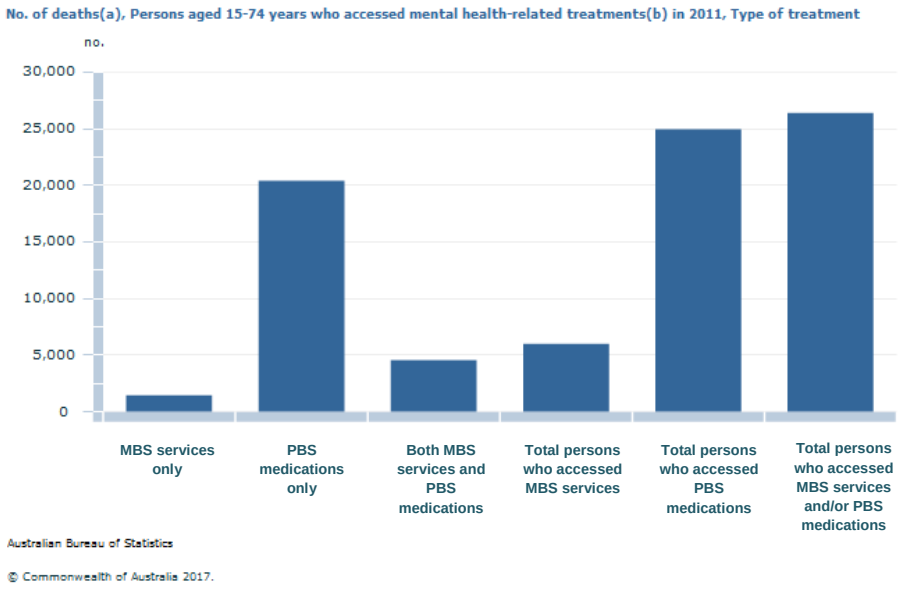
In 2011 there were 2.1 million persons aged 15-64 years (working age population) who accessed mental health-related treatments, with 13,177 deaths amongst this population. Of these deaths, almost three quarters (72.4%) were of persons not in the labour force. For the total Australian population of the same age, a little over half (56.8%) of all deaths were of persons not in the labour force. This difference reflects higher non-participation in the labour force amongst persons who accessed mental health-related treatments in general (38.5%), compared with all persons aged 15-64 years (23.0%), noting that persons who accessed mental health-related treatments and were not in the labour force may not be so due a variety of reasons not necessarily related to their mental health.

PERSONS AGED 15-74 YEARS

As noted previously, the number of deaths of persons aged 75 years and over who accessed mental health-related treatments in 2011 accounted for around two-thirds (65.2%) of all deaths amongst this population. While it is important to consider deaths of persons of all ages, the characteristics of deaths of all persons who accessed mental health-related treatments in 2011 are largely driven by this age group. Focussing on the population aged 15-74 years provides insights into patterns of mortality and associated characteristics for younger age groups. This is important given many deaths in this population are potentially avoidable (that is, potentially preventable through individualised care and/or treatable through existing primary or hospital care) (Endnote 5).

There were 53,289 deaths of persons aged 15-74 years registered in Australia in 2011-12 (between 10 August 2011 and 27 September 2012 inclusive). Persons who accessed mental health-related treatments accounted for 49.5% of all deaths of 15-74 year olds in this period (26,375 deaths).

Of the 26,375 deaths of persons aged 15-74 years who accessed mental health-related treatments in 2011, almost all had accessed PBS subsidised mental health-related prescription medications (24,925, or 94.5%). Almost one-quarter had accessed MBS subsidised mental health-related services (5,989, or 22.7%), almost twice the proportion of persons of all ages who had accessed MBS subsidised mental health-related services (12.1%), reflecting the higher use of mental health-related services amongst younger ages compared with older ages.



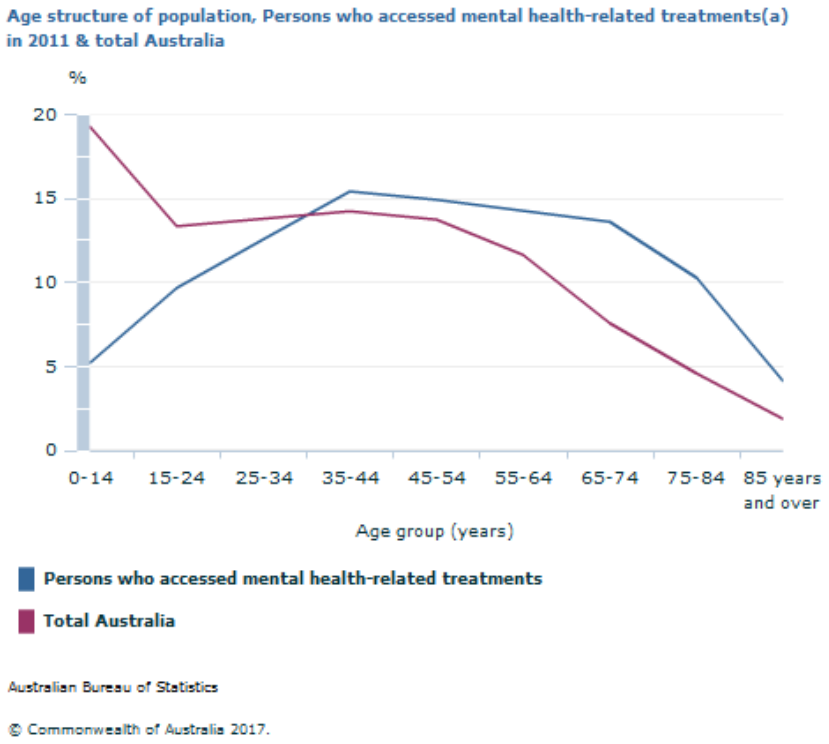
Footnote(s): *(a) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

CHAPTER 5: MORTALITY OF PERSONS WHO ACCESSED MBS AND/OR PBS SUBSIDISED MENTAL HEALTH-RELATED TREATMENTS IN 2011

This chapter presents information on death rates of persons who accessed MBS and/or PBS subsidised mental health-related services or prescription medications ('mental health-related treatments') in 2011, and makes comparisons with death rates amongst the total Australian population. Death rates are presented as the number of deaths per 1,000 population. Readers whose main interest is deaths without reference to persons accessing mental health-related treatments should refer to Deaths, Australia (cat. no. 3302.0).

The age structure of the population who accessed mental health-related treatments in 2011 was considerably older than that of the total Australian population, with a median age of 49 years compared with 37 years respectively. Given the relationship between age and mortality, in which death rates increase with increasing age, death rates presented in this publication have been age standardised to allow comparisons between the two populations.



Footnote(s): *(a) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

PERSONS OF ALL AGES

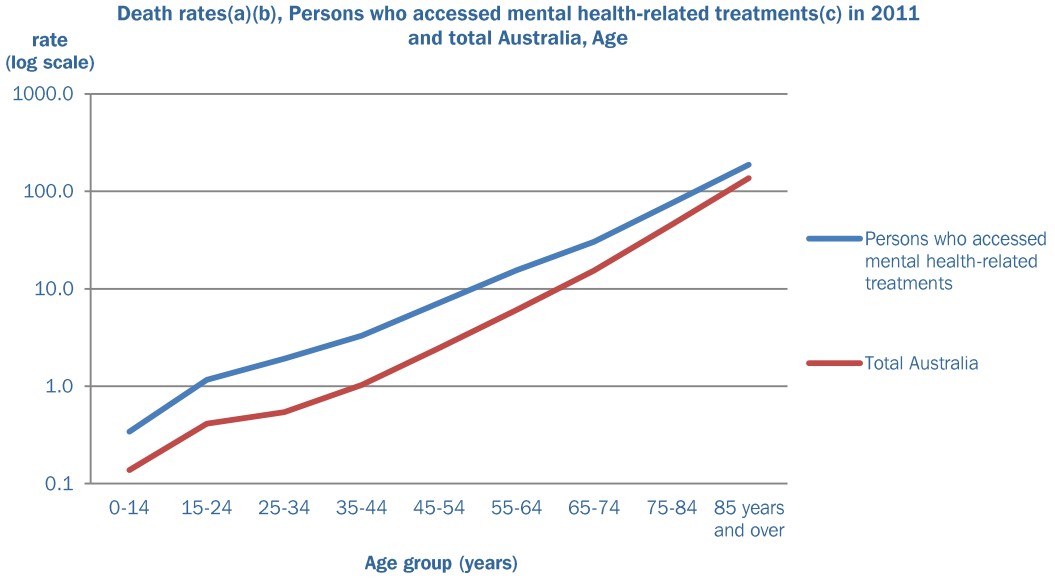
There were 75,858 deaths registered in Australia in 2011-12 (between 10 August 2011 and 27 September 2012 inclusive) of persons who accessed mental health-related treatments, equivalent to a crude death rate of 23.8 deaths per 1,000 population. The standardised death rate was 11.4 deaths per 1,000 population, almost twice that of the total Australian population (6.1 deaths per 1,000 population).

For males who accessed mental health-related treatments the standardised death rate was 16.4 deaths per 1,000 population, more than twice (2.3 times) that of deaths of all males in Australia (7.3 deaths per 1,000 population). For females who accessed mental health-related treatments the death rate was around 1.7 times higher than that of all females in Australia (8.6 deaths per 1,000 population compared with 5.1 deaths per 1,000 population respectively). Additionally, the standardised death rate for males who accessed mental health-related treatments was almost twice (1.9 times) that of females who accessed mental health-related treatments.

Footnote(s): *(a) Deaths per 1,000 population. Death rates are age standardised to the 2001 Australian population. (b) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (c) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

For persons who accessed mental health-related treatments in 2011, age-specific death rates increased with age, similar to the pattern of age-specific death rates amongst the total Australian population. However, across all age groups, age-specific death rates were higher amongst persons who accessed mental health-related treatments, and particularly amongst persons aged 25-44 years where death rates were three to four times higher than the Australian population aged 25-44 years.

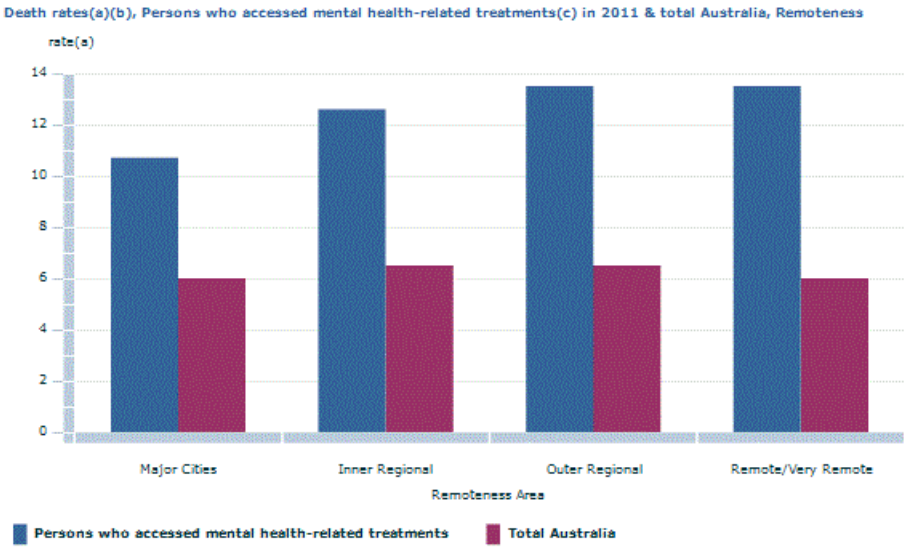


Footnote(s): *(a) Deaths per 1,000 population. Death rates are age standardised to the 2001 Australian population. (b) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (c)Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

The pattern of higher death rates amongst persons who accessed mental health-related treatments compared with the total Australian population was repeated across other socio-demographic characteristics such as geography and levels of socio-economic disadvantage. For persons in Remote/Very Remote and Outer Regional areas of Australia who accessed mental health-related treatments the standardised death rate was 13.5 deaths per 1,000 population, more than twice (2.3 and 2.1 times respectively) that of deaths of all persons in Remote/Very Remote and Outer Regional areas (6.0 and 6.5 deaths per 1,000 population respectively).

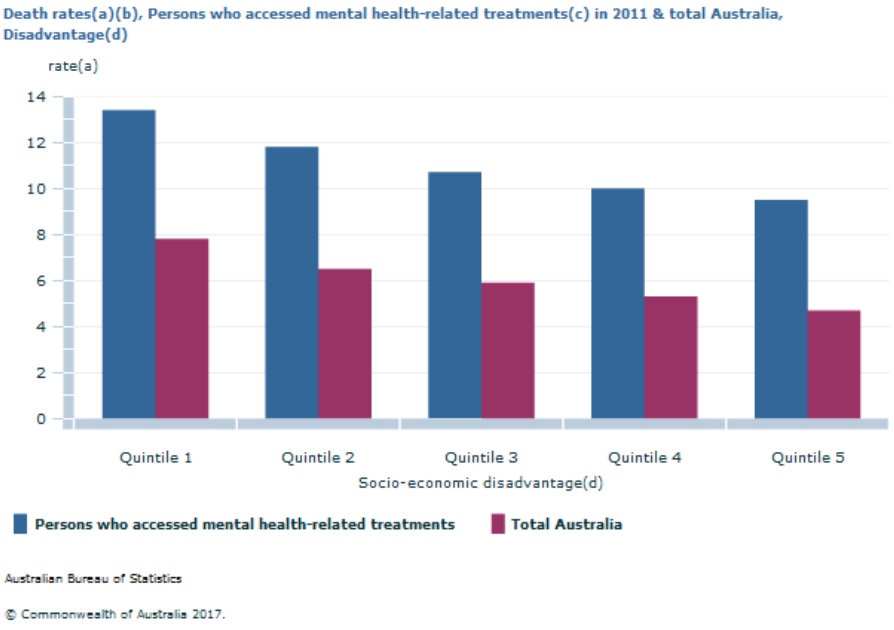
Additionally, amongst persons who accessed mental health-related treatments the standardised death rate for persons in Remote/Very Remote areas and Outer Regional areas (both 13.5 deaths per 1,000 population) was around one-quarter (26.2%) higher than for persons in Major Cities (10.7 deaths per 1,000 population).



Footnote(s): *(a) Deaths per 1,000 population. Death rates are age standardised to the 2001 Australian population. (b) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (c) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Similarly, amongst persons who accessed mental health-related treatments the standardised death rate for persons in the most disadvantaged areas of Australia (Quintile 1 below) was more than 40% higher than for persons in the least disadvantaged areas (Quintile 5) (13.4 deaths per 1,000 population compared with 9.5 deaths per 1,000 population respectively).



Footnote(s): *(a) Deaths per 1,000 population. Death rates are age standardised to the 2001 Australian population. (b) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (c) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011. (d) Index of Relative Socio-economic Disadvantage. A lower Index of Disadvantage quintile (e.g. Quintile 1) indicates an area with relatively greater disadvantage. A higher Index of Disadvantage (e.g. Quintile 5) indicates an area with a relative lack of disadvantage.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

DEATHS OF PERSONS WHO ACCESSED MBS AND/OR PBS SUBSIDISED MENTAL HEALTH-RELATED TREATMENTS IN 2011
Persons of all ages

	Persons who accessed mental health-related treatments in 2011(a)		Total Australian population		
	Deaths(b)	Death rate(c)	Deaths(b)	Death rate(c)	Rate ratio(d)
	no.	rate	no.	rate	ratio
Sex					
Males	35 457	16.4	78 428	7.3	2.3
Females	40 401	8.6	75 023	5.1	1.7
Remoteness Areas					
Major Cities	47 686	10.7	101 351	6.0	1.8
Inner Regional	18 942	12.6	34 698	6.5	1.9
Outer Regional	8 206	13.5	15 133	6.5	2.1
Remote/Very Remote	1 023	13.5	2 212	6.0	2.3
Index of Relative Socio-economic Disadvantage					
Quintile 1 – most disadvantaged areas	24 504	13.4	46 446	7.8	1.7
Quintile 2	18 112	11.8	35 436	6.5	1.8
Quintile 3	13 522	10.7	28 347	5.9	1.8
Quintile 4	10 645	10.0	22 713	5.3	1.9
Quintile 5 – least disadvantaged areas	8 376	9.5	18 785	4.7	2.0
Total deaths	**75 858**	**11.4**	**153 451**	**6.1**	**1.9**

(a) Persons who accessed MBS and/or PBS subsidised mental health-related services or medications in 2011.

(b) Deaths registered between 10 August 2011 and 27 September 2012 inclusive.

(c) Deaths per 1,000 population, age standardised to the 2001 Australian population.

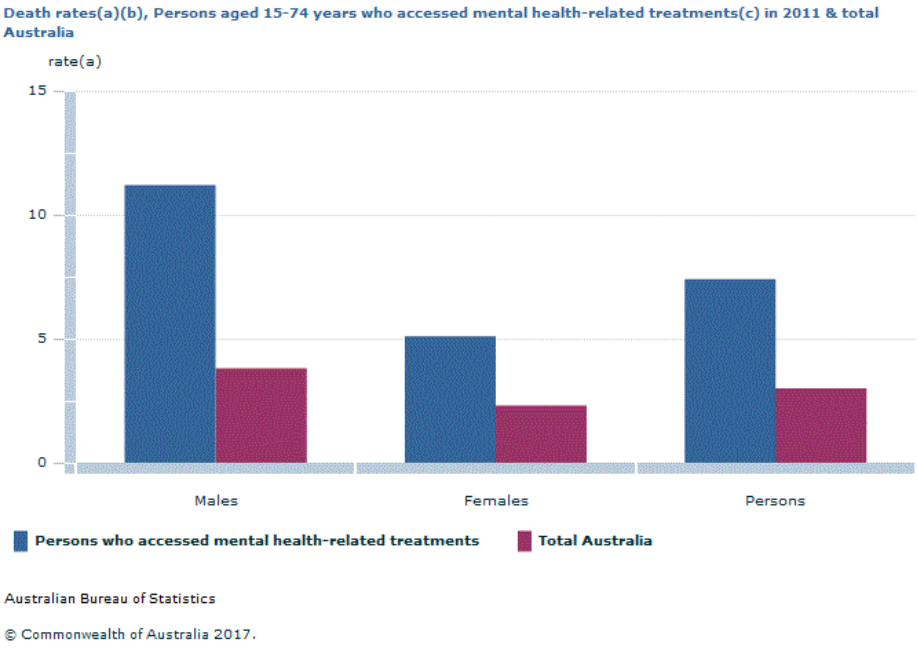
(d) Ratio calculated as death rate for persons who accessed mental health-related treatments divided by death rate for total Australian population.

PERSONS AGED 15-74 YEARS

While deaths of persons of all ages provide an overall picture of mortality, most deaths occur at older ages. In 2011-12, deaths of persons aged 75 years and over accounted for around two-thirds (64.9%) of all deaths in Australia, and therefore the overall picture may mask patterns of mortality amongst younger age groups. Consideration of deaths of persons aged 15-74 years is important as many deaths amongst this age group are potentially avoidable (that is, potentially preventable through individualised care and/or treatable through existing primary or hospital care) (Endnote 5).

There were 26,375 deaths of persons aged 15-74 years who accessed mental health-related treatments in 2011, accounting for one-third (34.8%) of all deaths of people who accessed mental health-related treatments (75,858 deaths). The standardised death rate for persons aged 15-74 years who accessed mental health-related treatments was 7.4 deaths per 1,000 population, almost two and a half times (2.4) that of the Australian population of the same age (3.0 deaths per 1,000 population).

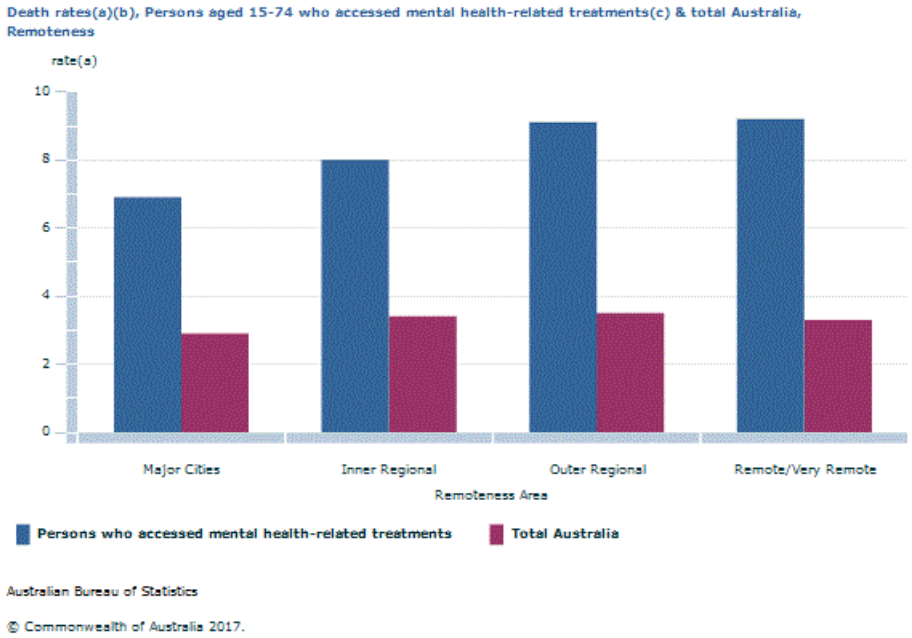
For males aged 15-74 years who accessed mental health-related treatments in 2011 the standardised death rate was 11.2 deaths per 1,000 population, almost three times (2.9) that of deaths of all males of the same age in Australia (3.8 deaths per 1,000 population). For females aged 15-74 years who accessed mental health-related treatments the death rate was 2.2 times higher than that of all females of the same age in Australia (5.1 deaths per 1,000 population compared with 2.3 deaths per 1,000 population respectively). Additionally, the standardised death rate for males aged 15-74 years who accessed mental health-related treatments was more than twice (2.2 times) that of females of the same age who accessed mental health-related treatments.



Footnote(s): *(a) Deaths per 1,000 population. Death rates are age standardised to the 2001 Australian population. (b) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (c) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

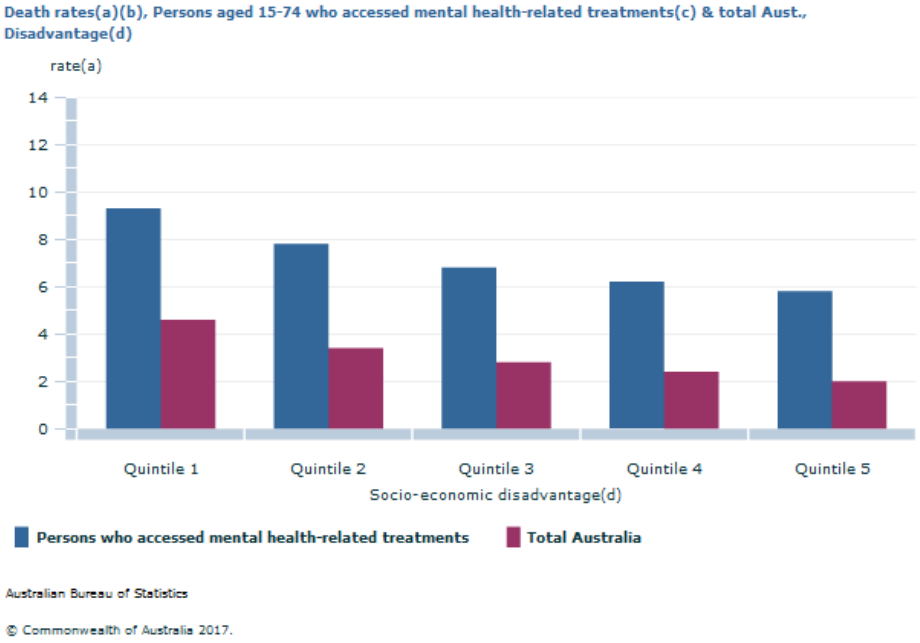
Across all Remoteness Areas, persons aged 15-74 years who accessed mental health-related treatments in 2011 had higher standardised death rates than the total population of the same age. For persons aged 15-74 years in Remote/Very Remote areas of Australia who accessed mental health-related treatments the standardised death rate was 9.2 deaths per 1,000 population, 2.7 times higher than that of the total population in Remote/Very Remote areas of the same age (3.3 deaths per 1,000 population).



Footnote(s): *(a) Deaths per 1,000 population. Death rates are age standardised to the 2001 Australian population. (b) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (c) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

The pattern of higher standardised death rates amongst persons aged 15-74 years who accessed mental health-related treatments compared with the total Australian population of the same age was repeated across levels of socio-economic disadvantage.



Footnote(s): *(a) Deaths per 1,000 population. Death rates are age standardised to the 2001 Australian population. (b) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (c) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011. (d) Index of Relative Socio-economic Disadvantage. A lower Index of Disadvantage quintile (e.g. Quintile 1) indicates an area with relatively greater disadvantage. A higher Index of Disadvantage (e.g. Quintile 5) indicates an area with a relative lack of disadvantage.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

DEATHS OF PERSONS WHO ACCESSED MBS AND/OR PBS SUBSIDISED MENTAL HEALTH-RELATED TREATMENTS IN 2011

Persons aged 15-74 years

	Persons who accessed mental health-related treatments in 2011(a)		Total Australian population		
	Deaths(b)	Death rate(c)	Deaths(b)	Death rate(c)	Rate ratio(d)
	no.	rate	no.	rate	ratio
Sex					
Males	14 790	11.2	32 897	3.8	2.9
Females	11 584	5.1	20 391	2.3	2.2
Remoteness Areas					
Major Cities	16 378	6.9	33 465	2.9	2.4
Inner Regional	6 472	8.0	12 445	3.4	2.4
Outer Regional	3 098	9.1	6 145	3.5	2.6
Remote/Very Remote	426	9.2	1 186	3.3	2.7
Index of Relative Socio-economic Disadvantage					
Quintile 1 – most disadvantaged areas	8 518	9.3	16 072	4.6	2.0
Quintile 2	6 183	7.8	12 000	3.4	2.3
Quintile 3	4 687	6.8	9 767	2.8	2.4
Quintile 4	3 813	6.2	8 172	2.4	2.6
Quintile 5 – least disadvantaged areas	3 085	5.8	7 008	2.0	2.8
Total deaths	**26 375**	**7.4**	**53 289**	**3.0**	**2.4**

(a) Persons who accessed MBS and/or PBS subsidised mental health-related services or medications in 2011.

(b) Deaths registered between 10 August 2011 and 27 September 2012 inclusive.

(c) Deaths per 1,000 population, age standardised to the 2001 Australian population.

(d) Ratio calculated as death rate for persons who accessed mental health-related treatments divided by death rate for total Australian population.

CHAPTER 6: CAUSES OF DEATH OF PERSONS WHO ACCESSED MBS AND/OR PBS SUBSIDISED MENTAL HEALTH-RELATED TREATMENTS IN 2011

This chapter focusses on underlying causes of death of persons who accessed MBS and/or PBS subsidised mental health-related services or prescription medications ('mental health-related treatments') in 2011. Underlying cause of death refers to the disease or injury that initiated the train of events leading directly to death (Endnote 6). Readers whose main interest is causes of death without reference to persons accessing mental health-related treatments should refer to Causes of Death, Australia (cat. no. 3303.0).

When considering causes of death it is important to note that the likelihood of particular causes of death change with age. For example, injury and infections account for a greater proportion of deaths amongst children compared with causes of death such as heart disease, cancer and dementia which account for a greater proportion of deaths amongst older persons. As the age structure of the population who accessed mental health-related treatments in 2011 is older than that of the total Australian population (with 28% being 65 years or older compared with 14% of the total Australian population), differences in causes of death between these populations are to some extent due to their different age structures.

Data below are presented according to leading causes of death (that is, most common) amongst persons who accessed mental health-related treatments in 2011. Standardised death rates are also presented to allow comparisons of mortality between persons who accessed mental health-related treatments and the total Australian population. Cause-specific standardised death rates in this chapter are presented as the number of deaths per 100,000 population while all-cause standardised death rates are presented as the number of deaths per 1,000 population.

PERSONS OF ALL AGES

There were 75,858 deaths registered in Australia in 2011-12 (between 10 August 2011 and 27 September 2012 inclusive) of persons who accessed mental health-related treatments, with a standardised death rate almost twice (1.9 times) that of the total Australian population (11.4 deaths per 1,000 population compared with 6.1 deaths per 1,000 population). For all leading causes of death, standardised death rates were consistently higher amongst persons who accessed mental health-related treatments compared with the total Australian population. These differences may be the result of varied and complex circumstances relating to diseases, their treatments and the impacts of chronic or terminal health conditions on a person's mental health.

The leading cause of death for persons who accessed mental health-related treatments in 2011 was Ischaemic heart disease, with 9,303 deaths (accounting for 12.3% of all deaths amongst this population). Ischaemic heart disease is a condition that affects the supply of blood to the heart. Ischaemic heart disease was also the leading cause of death amongst the total Australian population (21,597 deaths, or 14.1% of all deaths). The standardised death rate for Ischaemic heart disease for persons who accessed mental health-related treatments was 122.2 deaths per 100,000 population, one and a half times higher than that of the total Australian population (84.0 deaths per 100,000 population).

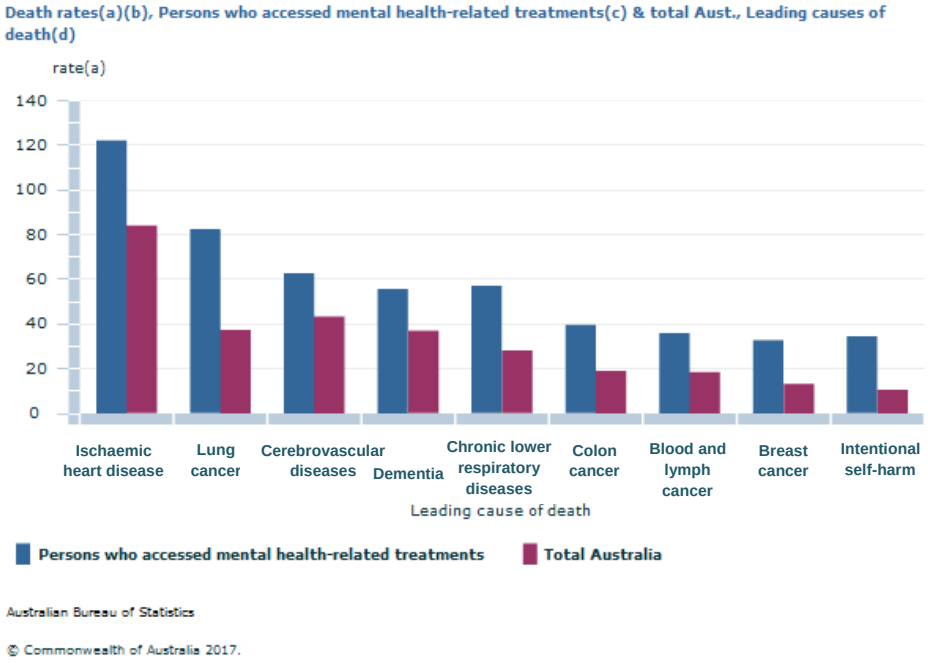
Lung cancer (Cancer of the trachea, bronchus or lung) was the second leading cause of death for persons who accessed mental health-related treatments in 2011, with 5,069 deaths (accounting for 6.7% of all deaths amongst this population). For the total Australian population, Lung cancer was the fourth most common cause of death. The standardised death rate for Lung cancer for persons who accessed mental health-related treatments was 82.4 deaths per 100,000 population, more than two times (2.2) higher than that of the total Australian population (37.4 deaths per 100,000 population).

Cerebrovascular diseases were the third leading cause of death for persons who accessed mental health-related treatments in 2011 (4,923 deaths, or 6.5% of all deaths amongst this population). Cerebrovascular diseases comprise a range of brain dysfunctions which relate to the blood vessels that supply the brain, of which stroke is a common type. Most deaths from cerebrovascular diseases are due to a stroke (Endnote 6).

Dementia, including Alzheimer's disease (4,756 deaths) and Chronic lower respiratory diseases (4,002 deaths) were the fourth and fifth leading causes of death respectively for persons who accessed mental health-related treatments in 2011, accounting for 6.3% and 5.3% of all deaths amongst this population. Dementia is a chronic illness that affects the brain, leading to health complications and often death. It is one of the most common diseases in the elderly and a major cause of disability (Endnote 7). Chronic lower respiratory diseases are a group of conditions affecting the lungs, including chronic obstructive pulmonary disease, asthma and emphysema.

The standardised death rate for Cerebrovascular diseases for persons who accessed mental health-related treatments in 2011 was 62.8 deaths per 100,000 population, 1.4 times higher than that of the total Australian population (43.3 deaths per 100,000 population). The standardised death rate for Dementia, including Alzheimer's disease for persons who accessed mental health-related treatments was 1.5 times higher than the total Australian population (55.7 deaths per 100,000 population compared with 36.9 deaths per 100,000 population respectively), while the standardised death rate for Chronic lower respiratory diseases for persons who accessed mental health-related treatments was twice that of the total Australian population (57.0 deaths per 100,000 population compared with 28.1 deaths per 100,000 population respectively).

Intentional self-harm was the thirteenth most common cause of death amongst persons who accessed mental health-related treatments, with a standardised death rate more than three times (3.3) that of the total Australian population (34.4 deaths per 100,000 population compared with 10.5 deaths per 100,000 population respectively). Similarly, the standardised death rate for Breast cancer amongst persons who accessed mental health-related treatments was considerably higher (two and a half times) than the Australian population overall (32.8 deaths per 100,000 population compared with 13.2 deaths per 100,000 population respectively).



Footnote(s): *(a) Deaths per 100,000 population. Death rates are age standardised to the 2001 Australian population. (b) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (c) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011. (d) Selected leading causes of death.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

LEADING CAUSES OF DEATH

Persons who accessed MBS and/or PBS subsidised mental health-related treatments in 2011 and total Australian population

Underlying cause	Rank(a)	Number of deaths no.	Proportion of all deaths %	Standardised death rate rate(b)	Rate ratio ratio(c)
PERSONS WHO ACCESSED MENTAL HEALTH-RELATED TREATMENTS IN 2011					
Ischaemic heart disease	1st	9 303	12.3	122.2	1.5
Lung cancer (Cancer of the trachea, bronchus or lung)	2nd	5 069	6.7	82.4	2.2
Cerebrovascular diseases (e.g. stroke)	3rd	4 923	6.5	62.8	1.4
Dementia, including Alzheimer's disease	4th	4 756	6.3	55.7	1.5
Chronic lower respiratory diseases (e.g. asthma, emphysema)	5th	4 002	5.3	57.0	2.0
Breast cancer	10th	1 802	2.4	32.8	2.5
Intentional self-harm	13th	1 214	1.6	34.4	3.3
All causes of death	. .	75 858	100.0	(d)11.4	1.9
TOTAL AUSTRALIAN POPULATION					
Ischaemic heart disease	1st	21 597	14.1	84.0	. .
Cerebrovascular diseases (e.g. stroke)	2nd	11 228	7.3	43.3	. .
Dementia, including Alzheimer's disease	3rd	9 887	6.4	36.9	. .
Lung cancer (Cancer of the trachea, bronchus or lung)	4th	9 065	5.9	37.4	. .
Chronic lower respiratory diseases (e.g. asthma, emphysema)	5th	7 002	4.6	28.1	. .
Breast cancer	12th	3 177	2.1	13.2	. .
Intentional self-harm	13th	2 295	1.5	10.5	. .
All causes of death	. .	153 451	100.0	(d)6.1	. .

(a) Data ranked according to leading cause of death.

(b) Deaths per 100,000 population, age standardised to the 2001 Australian population.

(c) Ratio of standardised death rate of persons who accessed mental health-related treatments in 2011 to standardised death rate of total Australian population.

(d) Deaths per 1,000 population, age standardised to the 2001 Australian population.

PERSONS AGED 15-74 YEARS

Persons aged 75 years and over comprised around two-thirds (64.9%) of all deaths amongst the total Australian population in 2011-12. Given the likelihood of death from particular causes differs across age, information on causes of death for all persons can mask patterns of causes of death amongst other age groups. Consideration of deaths of persons aged 15-74 years is important as many deaths amongst this age group are potentially avoidable (that is, potentially preventable through individualised care and/or treatable through existing primary or hospital care) (Endnote 5). Leading causes of death for persons aged 15-74 years are therefore presented below.

There were 26,375 deaths of persons aged 15-74 years who accessed mental health-related treatments in 2011, with a standardised death rate almost two and a half times (2.4) that of the total Australian population of the same age (7.4 deaths per 1,000 population compared with 3.0 deaths per 1,000 population respectively). The pattern of higher death rates amongst persons aged 15-74 years who accessed mental health-related treatments was evident across all leading causes of death.

The leading cause of death for persons aged 15-74 years who accessed mental health-related treatments in 2011 was Lung cancer (Cancer of the trachea, bronchus or lung), with 2,919 deaths (accounting for 11.1% of all deaths amongst this population), followed by Ischaemic heart disease (1,978 deaths, or 7.5% of all deaths of persons who accessed mental health-related treatments). The leading causes of death amongst the total Australian population aged 15-74 years were Ischaemic heart disease (10.4%) and Lung cancer (9.8%).

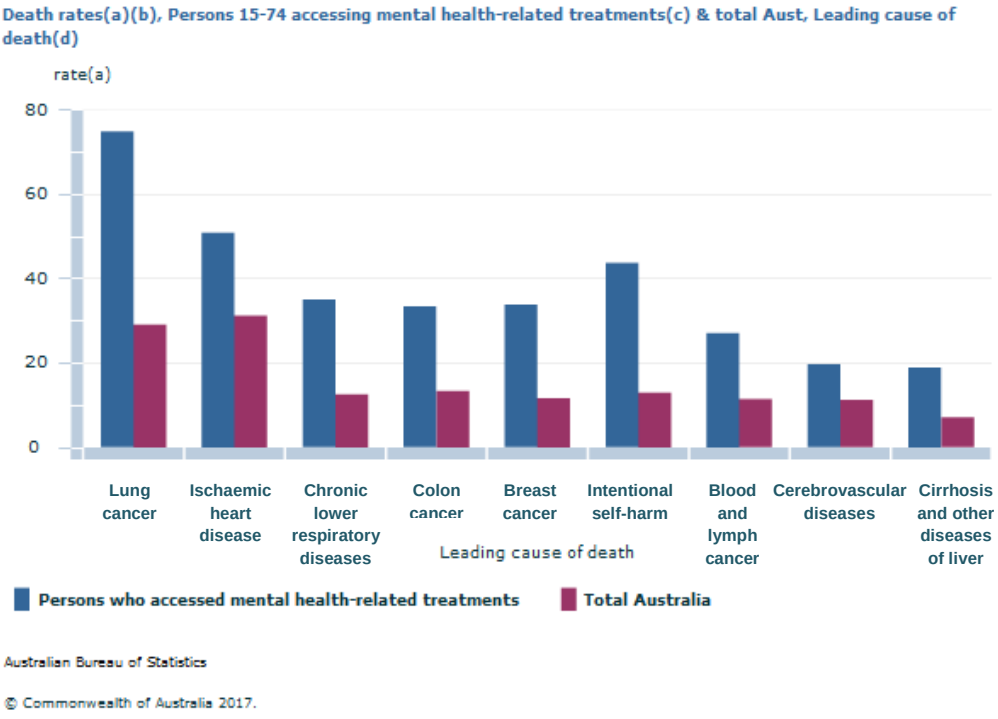
The standardised death rate for Lung cancer for persons aged 15-74 years who accessed mental health-related treatments was 74.8 deaths per 100,000 population, more than two and a half times (2.6) that of the total Australian population of the same age (29.1 deaths per 100,000 population). For Ischaemic heart disease the standardised death rate for persons aged 15-74 years who accessed mental health-related treatments was 50.9 deaths per 100,000 population, compared with 31.2 deaths per 100,000 population amongst the total Australian population of the same age. While it is not possible to attribute causality between behavioural risks factors, use of mental health-related treatments and causes of death, the 2014-15 National Health Survey showed that of the 3.4 million persons in Australia aged 15-74 years who reported having a mental or behavioural condition, almost one quarter (23.9%) smoked currently, compared with 16.3% of all persons aged 15-74 years.

Chronic lower respiratory diseases and Colon cancer were the third and fourth leading causes of death of persons aged 15-74 years who accessed mental health-related treatments in 2011, with 1,437 deaths (5.4%) and 1,210 deaths (4.6%) respectively. This order was reversed amongst the total Australian population aged 15-74 years, with Colon cancer accounting for 4.4% of all deaths of 15-74 year olds and Chronic lower respiratory diseases accounting for 4.2%.

Breast cancer and Intentional self-harm were the fifth and sixth leading causes of death of persons aged 15-74 years who accessed mental health-related treatments in 2011, with 1,151 deaths (4.4%) and 1,072 deaths (4.1%) respectively. This order was reversed amongst the total Australian population aged 15-74 years, with Intentional self-harm accounting for 3.9% of all deaths of 15-74 year olds and Breast cancer accounting for 3.8%.

The standardised death rate for deaths due to Intentional self-harm (43.7 deaths per 100,000 population) was the third highest of all leading causes of death amongst persons aged 15-74 years who accessed mental health-related treatments, behind Lung cancer and Ischaemic heart disease. This rate was almost three and a half times (3.4) higher than that of the total Australian population of the same age (13.0 deaths per 100,000 population).

The standardised death rate for Breast cancer amongst persons aged 15-74 years who accessed mental health-related treatments was almost three times (2.9) higher than the total Australian population of the same age (33.8 deaths per 100,000 population compared with 11.7 deaths per 100,000 population respectively).



Footnote(s): *(a) Deaths per 100,000 population. Death rates are age standardised to the 2001 Australian population. (b) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (c) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011. (d) Selected leading causes.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

LEADING CAUSES OF DEATH

Persons aged 15-74 years who accessed MBS and/or PBS subsidised mental health-related treatments in 2011 and total Australian population

Underlying cause	Rank(a)	Number of deaths no.	Proportion of all deaths %	Standardised death rate rate(b)	Rate ratio ratio(c)
PERSONS AGED 15-74 YEARS WHO ACCESSED MENTAL HEALTH-RELATED TREATMENTS IN 2011					
Lung cancer (Cancer of the trachea, bronchus or lung)	1st	2 919	11.1	74.8	2.6
Ischaemic heart disease	2nd	1 978	7.5	50.9	1.6
Chronic lower respiratory diseases (e.g. asthma, emphysema)	3rd	1 437	5.4	35.0	2.8
Colon cancer	4th	1 210	4.6	33.4	2.5
Breast cancer	5th	1 151	4.4	33.8	2.9
Intentional self-harm	6th	1 072	4.1	43.7	3.4
All causes of death	. .	26 375	100.0	(d)7.4	2.4
TOTAL AUSTRALIAN POPULATION AGED 15-74 YEARS					
Ischaemic heart disease	1st	5 529	10.4	31.2	. .
Lung cancer (Cancer of the trachea, bronchus or lung)	2nd	5 228	9.8	29.1	. .
Colon cancer	3rd	2 367	4.4	13.4	. .
Chronic lower respiratory diseases (e.g. asthma, emphysema)	4th	2 243	4.2	12.6	. .
Intentional self-harm	5th	2 067	3.9	13.0	
Breast cancer	6th	2 043	3.8	11.7	. .
All causes of death	. .	53 289	100.0	(d)3.0	. .

(a) Data ranked according to leading cause of death.

(b) Deaths per 100,000 population, age standardised to the 2001 Australian population.

(c) Ratio of standardised death rate of persons who accessed mental health-related treatments in 2011 to standardised death rate of total Australian population

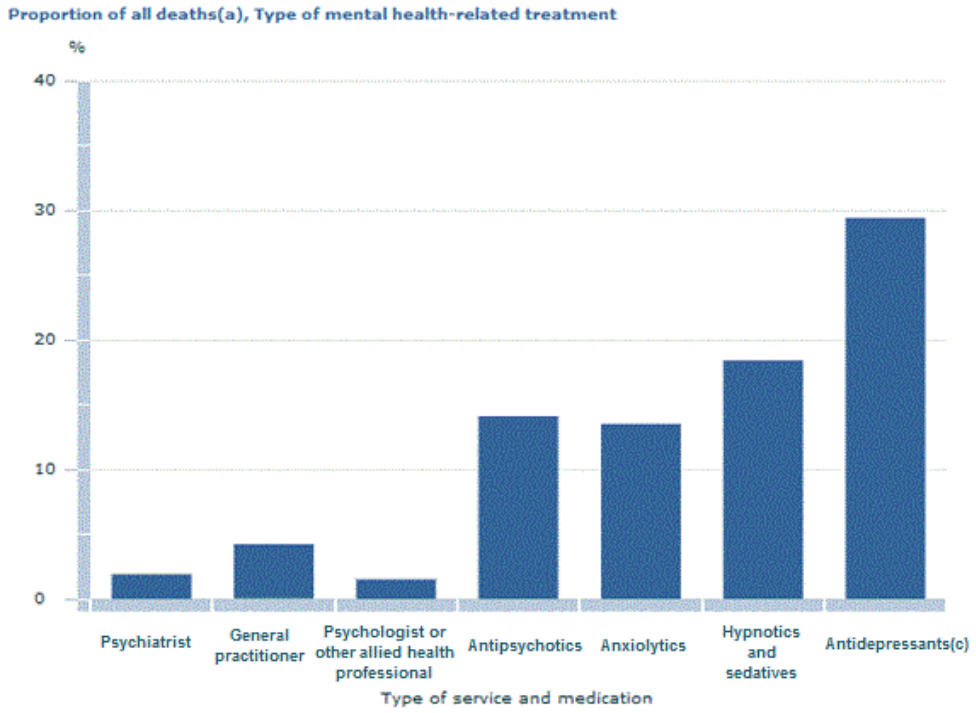
(d) Deaths per 1,000 population, age standardised to the 2001 Australian population.

CAUSE OF DEATH AND TREATMENT TYPE

Proportions presented in this section refer to numbers of deaths of persons who accessed mental health-related treatments as a proportion of all deaths in Australia. See Appendix 1 and Appendix 2 for a description of mental health-related services and prescription medications subsidised under the MBS and PBS.

There were 153,451 deaths of persons in Australia in 2011-12 (between 10 August 2011 and 27 September 2012 inclusive). Around half (49.4% or 75,858 deaths) of these persons had accessed mental health-related treatments in 2011, comprising mainly use of medications (with 48.1% of these persons accessing PBS subsidised mental health-related medications in 2011) and only a relatively small proportion of these persons (6.0%) accessing mental health-related services.

Amongst the 153,451 deaths of persons in Australia, the most commonly accessed mental health-related medications were antidepressants, with 29.4% (45,039 persons) accessing this type of medication in 2011, while mental health-related consultations with general practitioners (GPs) were the most commonly accessed service, with 4.2% (6,472 persons) having accessed this type of service. Note that consultations with GPs that may have involved discussion of mental health issues but were not recorded as mental health-related services were not captured in the Mental Health Services-Census-Mortality Integrated Dataset.

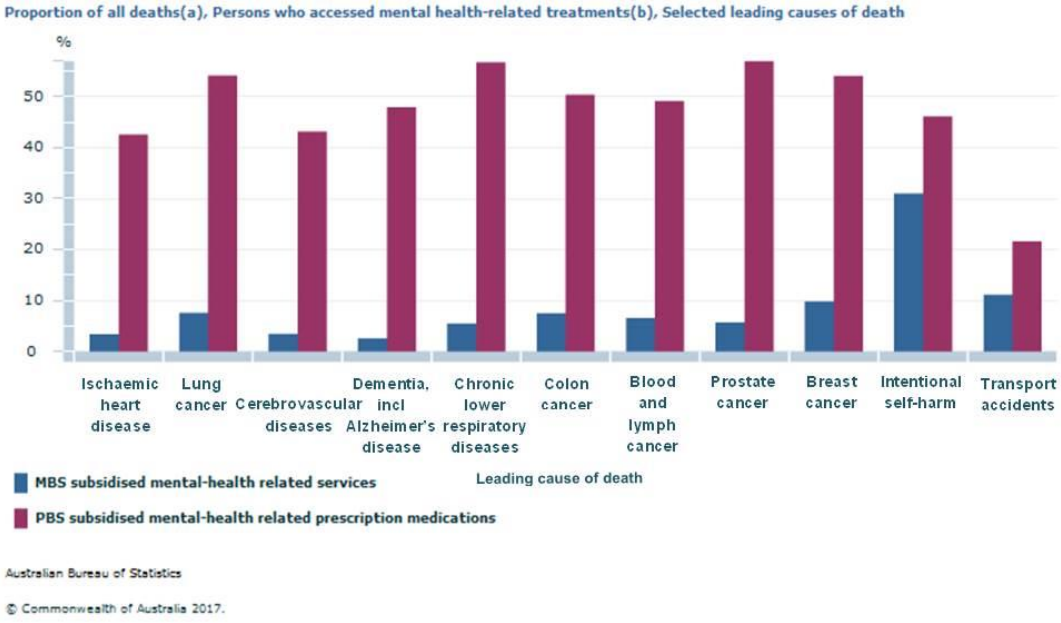


Footnote(s): *(a) All deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Includes psychostimulants, agents used for ADHD and nootropics.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Across causes of death, the types of mental health-related treatments that persons accessed differed considerably. Of all persons with Intentional self-harm as an underlying cause of death (2,295 persons), almost one third (31.0% or 712 persons) had accessed mental health-related services in 2011, the highest proportion of persons accessing mental health-related services across all leading causes of death.

Of all persons with Chronic lower respiratory disease as an underlying cause of death (7,002 persons), more than half (56.7% or 3,970 persons) had accessed mental health-related medications in 2011. Similarly, persons with cancer as an underlying cause of death had relatively high rates of accessing mental health-related medications: 56.9% of all deaths of persons from Prostate cancer, 54.1% of all deaths of persons from Lung cancer (Cancer of the trachea, bronchus or lung) and 54.0% of all deaths of persons from Breast cancer.



Footnote(s): *(a) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Antidepressants were most commonly accessed by persons whose underlying cause of death was Chronic lower respiratory diseases (2,664 persons, or 38.0% of all deaths of persons from Chronic lower respiratory diseases). Amongst all persons whose cause of death was Dementia, including Alzheimer's disease (9,887 persons), almost one-third (32.3%, or 3,195 persons) had accessed antipsychotics in 2011.

Hypnotics and sedatives were most commonly accessed by persons whose cause of death was Prostate cancer or Lung cancer, with around one quarter of all deaths of persons from these causes having accessed these medications in 2011 (25.6% and 24.2% of all deaths of persons from Prostate cancer and Lung cancer respectively).

INTENTIONAL SELF-HARM

Mental illness is a key risk factor for intentional self-harm (Endnote 8), highlighting the importance of effective mental health-related treatments for persons with poor mental health. The following analysis considers deaths of persons from intentional self-harm in 2011-12 (between 10 August 2011 and 27 September 2012 inclusive), including whether they had accessed MBS and/or PBS subsidised mental health-related services or prescription medications ('mental health-related treatments'). Readers whose main interest is deaths due to intentional self-harm without reference to persons accessing mental health-related treatments should refer to Causes of Death, Australia (cat. no. 3303.0).

In 2011-12 there were 2,295 deaths from Intentional self-harm, accounting for 1.5% of all deaths in Australia. Males accounted for around three-quarters (76.0%) of all deaths from Intentional self-harm (1,744 deaths of males compared with 552 deaths of females), and more than four in five deaths (82.6% or 1,896 deaths) from Intentional self-harm were of persons aged 15-64 years.

The standardised death rate for Intentional self-harm was 10.5 deaths per 100,000 population, with the rate for males being more than three times that of females (16.4 deaths per 100,000 population compared with 5.0 deaths per 100,000 population respectively).

While Intentional self-harm accounts for a relatively small proportion (1.5%) of all deaths in Australia, it accounts for a higher proportion of deaths amongst younger persons. In 2011-12, Intentional self-harm accounted for more than one quarter of deaths (27.7%) of persons aged 15-24 years and a similar proportion (23.2%) amongst persons aged 25-34 years. For persons aged 35-44 years, 13.4% of deaths were due to Intentional self-harm.

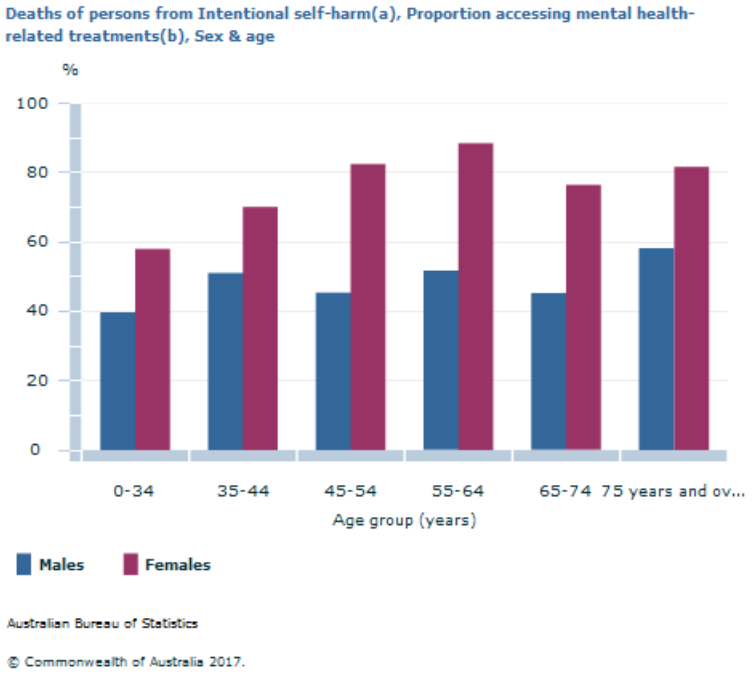
Deaths from Intentional self-harm amongst persons who accessed mental health-related treatments

Of the 2,295 deaths of persons from Intentional self-harm in Australia in 2011-12, just over half (52.9% or 1,214 persons) had accessed mental health-related treatments in 2011. The age structure of these deaths was similar to that of deaths due to Intentional self-harm amongst the total Australian population overall, with 81.0% of deaths from Intentional self-harm amongst persons who accessed mental health-related treatments being persons aged 15-64 years.

The standardised death rate for deaths due to Intentional self-harm for persons who accessed mental health-related treatments in 2011 was 34.4 deaths per 100,000 population, almost three and a half times (3.3) that of the total Australian population (10.5 deaths per 100,000 population).

Types of treatment

Amongst males with Intentional self-harm as a cause of death, almost half (46.7% or 814 males) had accessed mental health-related treatments in 2011, while amongst females with Intentional self-harm as a cause of death almost three-quarters (72.5% or 400 females) had accessed mental health-related treatments. Almost nine in ten (89.7%) females aged 55-64 years with Intentional self-harm as a cause of death had accessed mental health-related treatments in 2011.

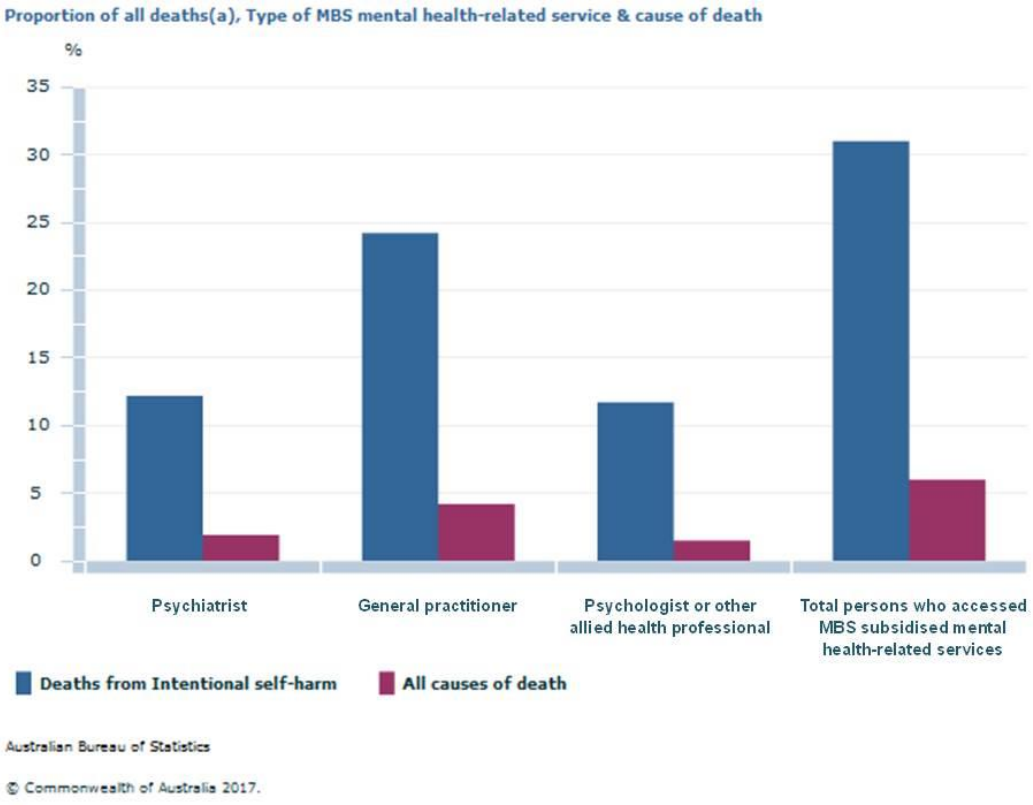


Footnote(s): *(a) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Of the 2,295 deaths of persons due to Intentional self-harm in Australia in 2011-12, around one-third (31.0% or 712 persons) had accessed MBS subsidised mental health-related services. This proportion was considerably higher than the proportion of deaths of persons from all causes who had accessed MBS subsidised mental health-related services (6.0%). Almost half (46.1% or 1,059 persons) of all persons with Intentional self-harm as a cause of death had accessed PBS subsidised mental health-related prescription medications.

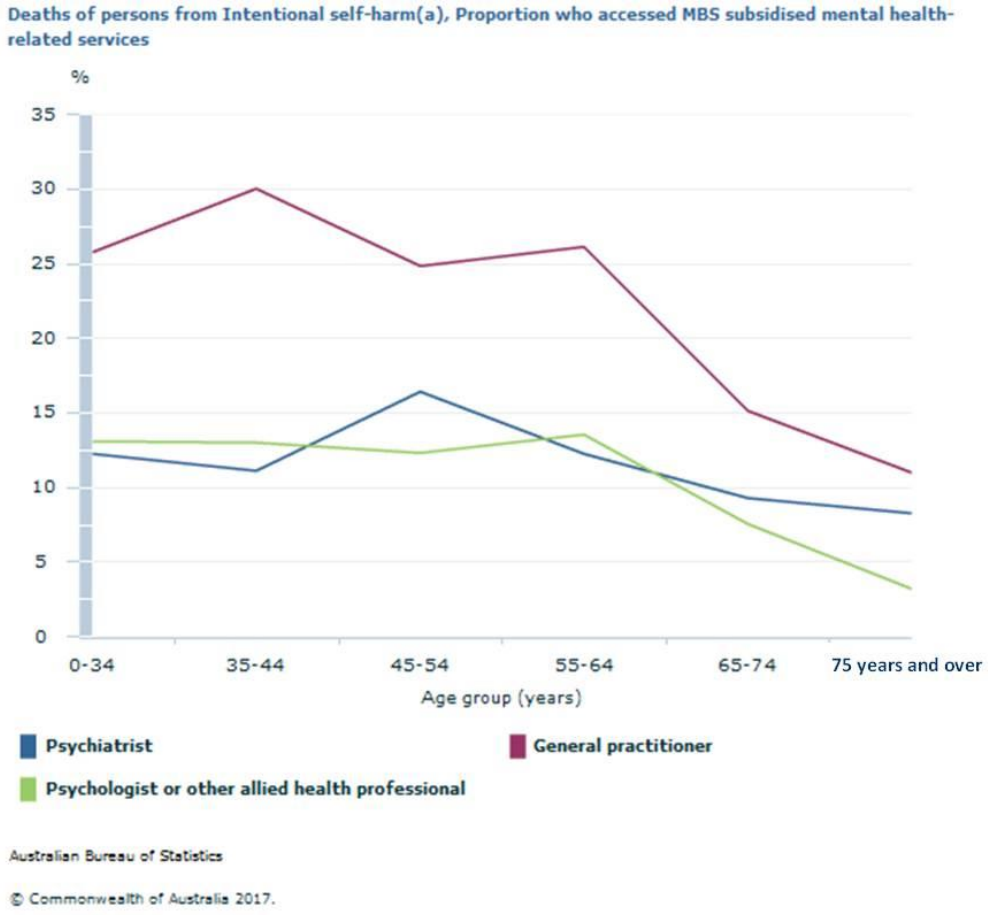
In relation to particular mental health-related services, almost one-quarter (24.2%) of persons with Intentional self-harm as a cause of death had mental health-related consultation(s) with a general practitioner in 2011, while 12.2% had accessed a psychiatrist and 11.7% had accessed a psychologist or other allied health professional. These proportions were considerably higher than for persons who died from other leading causes of death.



Footnote(s): *(a) All deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Of persons with Intentional self-harm as a cause of death, the proportions who accessed different types of mental health-related services varied across age. Amongst persons aged 35-44 years with Intentional self-harm as a cause of death, 30.0% had accessed a general practitioner for mental health-related consultations in 2011, compared with 11.0% of persons aged 75 years and over.

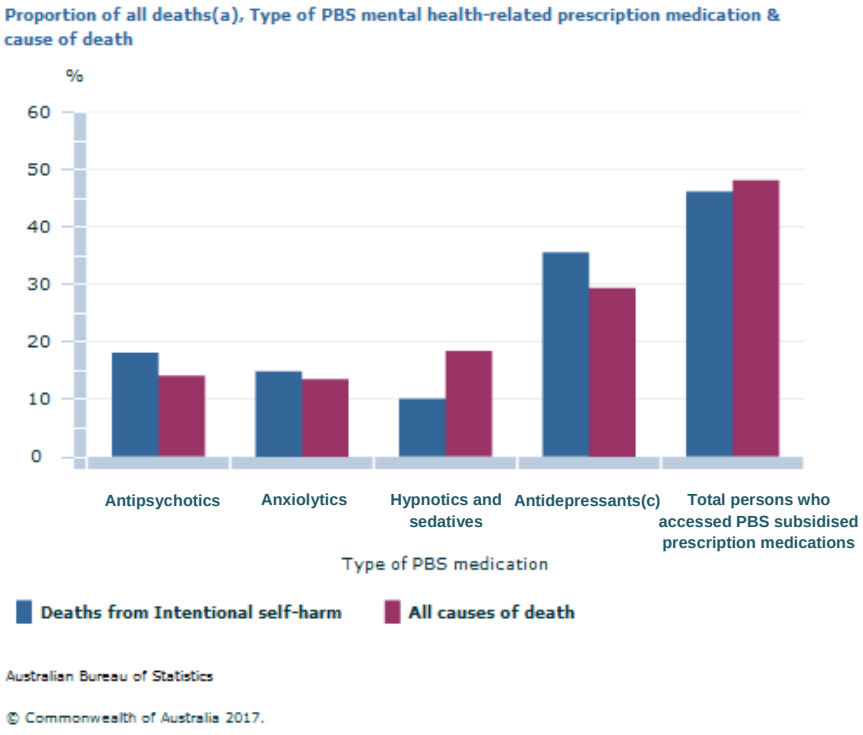


Footnote(s): *(a) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Almost half (46.1%) of persons with Intentional self-harm as a cause of death accessed mental health-related medications in 2011, similar to the proportion of persons who accessed mental health-related medications who died from all causes (48.1%).

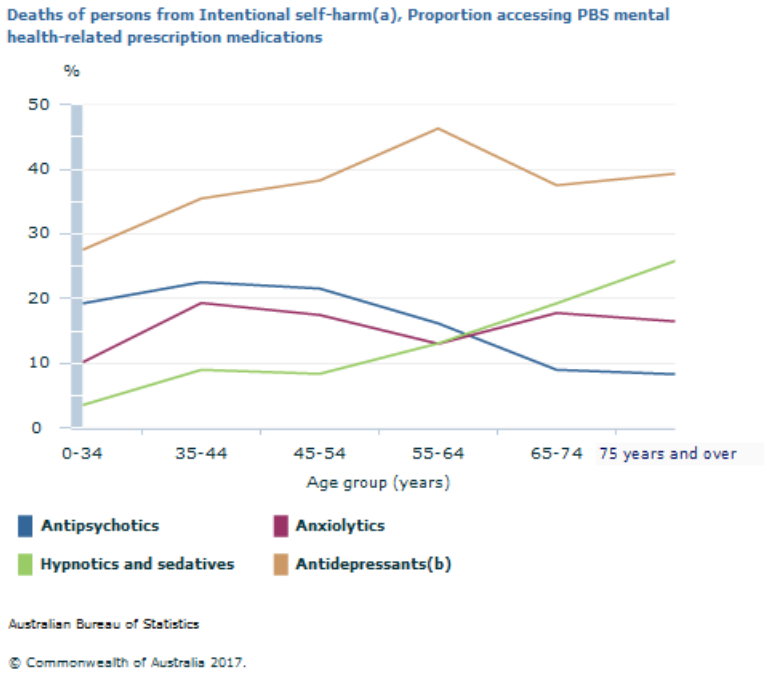
In relation to particular mental health-related medications, around one-third (35.6%) of persons with Intentional self-harm as a cause of death had accessed antidepressants in 2011. A further 18.1% had accessed antipsychotics while 14.9% had accessed anxiolytics.



Footnote(s): *(a) All deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Includes psychostimulants, agents used for ADHD or nootropics.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

Of persons with Intentional self-harm as a cause of death, the proportions who accessed different types of mental health-related medications varied across age. Almost half (46.5%) of persons aged 55-64 years with Intentional self-harm as a cause of death had accessed antidepressants in 2011 while almost one quarter (22.5%) of persons aged 35-44 years had accessed antipsychotics.



Footnote(s): *(a) Deaths registered in Australia between 10 August 2011 and 27 September 2012 inclusive. (b) Includes psychostimulants, agents used for ADHD or nootropics.*

Source(s): *Mortality of People Using Mental Health Services and Prescription Medications*

CHAPTER 7: CONCLUSIONS

The Mental Health Services-Census-Mortality Integrated Dataset has enabled analysis of the characteristics and mortality outcomes of persons who accessed MBS subsidised mental health-related services and/or PBS subsidised mental health-related prescription medications in 2011. Results from this analysis provide new insights into mortality amongst persons who accessed these treatments.

Persons who accessed mental health-related treatments in 2011 were found to have considerably higher rates of mortality than the Australian population overall, while differences in death rates also existed between different groups within this population.

Results show that while causes of death amongst persons who accessed mental health-related treatments were broadly similar to those of the Australian population overall, cause-specific death rates were higher amongst persons who accessed mental health-related treatments.

Additional investigations into the ways Australians access mental health-related treatments would further add to the body of evidence available to inform mental health policy and programs.

EXPLANATORY NOTES

INTRODUCTION

1 This publication contains statistics on characteristics and measures of mortality of persons who accessed Medicare Benefits Schedule (MBS) subsidised mental health-related services and/or Pharmaceutical Benefits Scheme (PBS) subsidised mental health-related prescription medications ('mental health-related treatments') in 2011. The cohort of persons who accessed mental health-related treatments during the calendar year 2011 was linked to death records for the 13-month period following the 2011 Census (between 10 August 2011 and 27 September 2012 inclusive).

DATA SOURCES

2 Data are sourced from the Mental Health Services-Census-Mortality Integrated Dataset which was created to enable analysis included in this publication. This dataset combines information about mental health-related data items from the MBS and PBS with information from the ABS Mortality, Enhanced Characteristics, Australia, 2011-12 dataset and 2011 Census of Population and Housing (Census).

Medicare Benefits Schedule and Pharmaceutical Benefits Scheme data

3 The Department of Human Services collects data on the activity of all persons making claims through the Medicare Benefits Scheme and provides this information to the Department of Health. Information collected includes the type of service provided (MBS item number) and the benefit paid by Medicare for the service. Item numbers and benefits paid by Medicare are based on the Medicare Benefits Schedule which is a listing of the Medicare services subsidised by the Australian Government. The Mental Health Services-Census-Mortality Integrated Dataset includes those MBS subsidised mental health-related services as defined in Appendix 1.

4 The Department of Human Services provides data on prescriptions funded through the Pharmaceutical Benefits Scheme to the Department of Health. The PBS lists all of the medicines available to be dispensed to patients at a Government-subsidised price. The Mental Health Services-Census-Mortality Integrated Dataset includes those PBS subsidised mental health-related prescription medications as defined in Appendix 2.

5 The scope of MBS and PBS data is restricted to persons who accessed subsidised mental health-related items listed on the MBS or PBS in 2011, and excludes:

- persons who received services provided by hospital doctors to public patients in public hospitals, or services that qualify for a benefit under the Department of Veterans' Affairs National Treatment Account
- the Repatriation Pharmaceutical Benefits Scheme which is subsidised by the Department of Veterans' Affairs
- persons who were supplied medications or accessed services through programs that do not use the Medicare processing system; for example, Aboriginal and Torres Strait Islander Health Programmes
- persons accessing private prescription drugs, over the counter drugs, and drugs that cost less than the co-payment
- persons who accessed MBS and/or PBS subsidised mental health-related treatments in 2011 but had a date of death before Census night 2011 (9 August).

2011 Census of Population and Housing

6 The 2011 Census measured the number and socio-demographic characteristics of people who were in Australia on Census night 2011 (9 August). The scope of the Census excludes:

- persons whose Census record indicated they were an overseas visitor to Australia on Census night
- persons usually resident in Australia who were out of the country on Census night
- persons who were not enumerated in the 2011 Census.

7 For more detailed information about the 2011 Census refer to Census 2011 Reference and Information and Census Data Quality on the ABS website.

Mortality information

8 Mortality-related data items in the dataset were obtained from the ABS Mortality, Enhanced Characteristics, Australia, 2011-12 dataset, which combines deaths registrations with 2011 Census of Population and Housing.

9 Death registrations are provided to the ABS by state and territory Registrars of Births, Deaths and Marriages. As part of the registration process, information about the cause of death is supplied by a medical practitioner certifying the death, or by a coroner. Other information about the deceased is supplied by a relative or other person acquainted with the deceased or by an official of an institution where the death occurred. For deaths which are certified by a coroner, the ABS also receives information pertaining to cause of death from the National Coronial Information System (NCIS).

10 Deaths in scope of the dataset are those registered in Australia during the 13-month period following the 2011 Census; that is, between 10 August 2011 and 27 September 2012 inclusive. This reference period was selected in order to capture as many deaths as possible of people who were counted in the 2011 Census conducted on 9 August 2011.

11 For more detailed information about death registrations see Deaths, Australia (cat. no. 3302.0) and Causes of Death, Australia (cat. no. 3303.0).

METHOD USED TO CREATE THE MENTAL HEALTH SERVICES-CENSUS-MORTALITY INTEGRATED DATASET

12 The method used to create the Mental Health Services-Census-Mortality Integrated Dataset involved enhancing the existing Mental Health Services-Census Integrated Dataset through the addition of mortality information from the Mortality, Enhanced Characteristics, Australia, 2011-12 dataset, by merging these two source datasets according to an identifier common to both datasets as a result of each including Census data. The two source datasets were the result of previous, separate data integration projects: the former linking MBS and PBS information with 2011 Census and the latter linking mortality information with 2011 Census.

13 In creating the Mental Health-Census-Mortality Integrated Dataset some minor adjustments to the scope of the source datasets were required, resulting in small differences between data presented in this publication and data previously published from the source datasets:

- a small number of records (34,534) of persons who accessed mental health-related treatments in 2011 were found to have had a date of death before Census night 2011 (9 August). These records were removed from the dataset
- a small number of death registrations were recognised as being out of scope for linkage purposes for the Mortality, Enhanced Characteristics, Australia, 2011-12 dataset subsequent to the linkage process being undertaken. The total number of death registrations in the Mental Health-Census-Mortality Integrated Dataset (153,451 deaths) therefore differs sightly to that of the number in the Mortality, Enhanced Characteristics dataset (153,455 deaths).

14 For detailed information about the integration methods used for both source datasets see Characteristics of People Using Mental Health Services and Prescription Medication, 2011 (cat. no. 4329.0) and Mortality, Enhanced Characteristics, Australia, 2011-12 (cat. no. 3303.0.55.002).

WEIGHTING

15 Weighting is the process of adjusting a sample to infer results for the relevant population from which the sample has been taken. To do this, a 'weight' is allocated to each sample unit in a dataset. The weight can be considered an indication of how many people in the relevant population are represented by each person in the sample. In the case of data linkage projects, linked records can be considered to be the sample while all records (that is, linked and unlinked) comprise the relevant population.

16 Weighting also aims to compensate for differences in propensity to link, as some groups of records are more, or less, likely to link than other groups of records. This may result in over-representation of some groups and under-representation of others. Records are more difficult to link when a person has poorly reported, poorly coded, missing or non-applicable values for linking variables, such as date of birth, or place of usual residence.

17 Three weights were used to compile data in this publication, according to the particular population being reported upon:

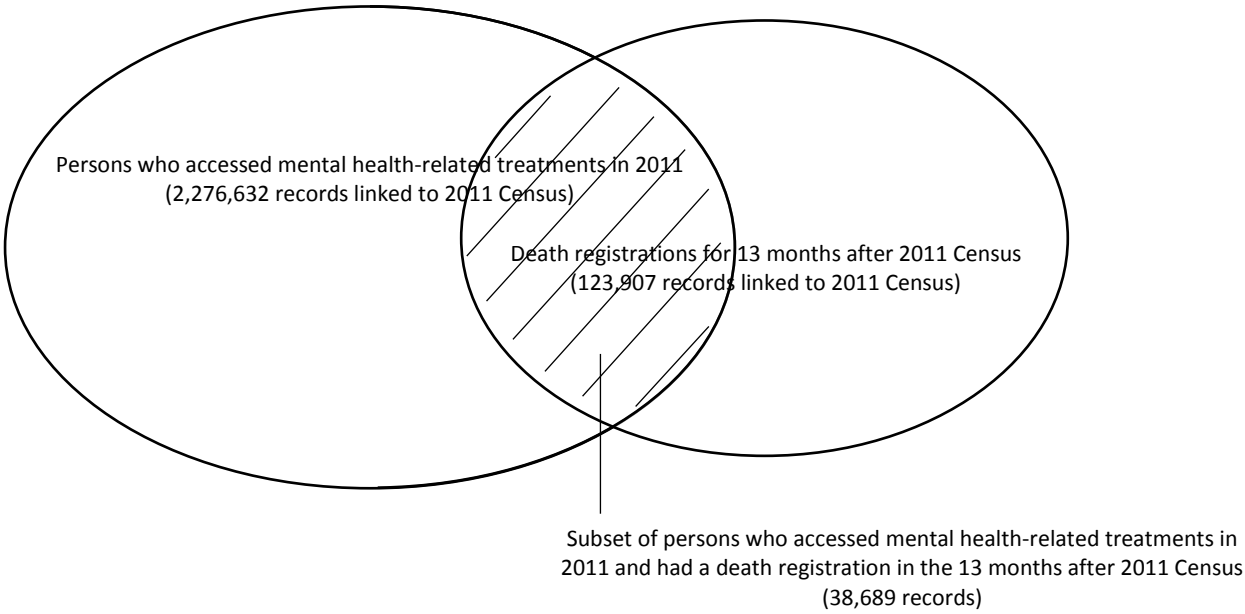
- 'MBS/PBS weight' – to calculate numbers of persons who accessed mental health-related treatments in 2011 (irrespective of whether a person had an associated death record in the 13 months following the 2011 Census)
- 'death registrations weight' – to calculate numbers of deaths of persons in the period 10 August 2011 to 27 September 2012 inclusive (irrespective of whether a person had accessed mental health-related treatments in 2011)
- 'MBS/PBS/death registrations weight' – to calculate numbers of deaths of persons (in the period 10 August 2011 to 27 September 2012 inclusive) who accessed mental health-related treatments in 2011.

18 The following section describes the populations included in the Mental Health Services-Census-Mortality Integrated Dataset as well as linkage rates and calculation of weights. The dataset includes 2,361,850 records in total (see Figure 1), comprising:

- 2,276,632 records for persons who accessed mental health-related treatments in 2011 and which were linked to the 2011 Census, representing 3,190,847 persons in total who accessed mental health-related treatments in 2011 (a linkage rate of 71.3%)
- 123,907 death registration records for the period 10 August 2011 to 27 September 2012 inclusive and which were linked to the 2011 Census, representing 153,451 death registrations in total for the same period (a linkage rate of 80.7%).

19 The two populations above include a subset of 38,689 records of persons who accessed mental health-related treatments in 2011 for whom a death registration was recorded for the period 10 August 2011 to 27 September 2012 inclusive.

Figure 1: Populations in Mental Health Services-Census-Mortality Integrated Dataset



20 Weights for the two populations can be calculated as the multiplicative inverse of the linkage rate. To illustrate:

- MBS/PBS weight - for all persons who accessed mental health-related treatments in 2011, the average weight is 3,190,847 / 2,276,632 = 1.40; that is, each of the 2,276,632 records for persons who accessed mental health-related treatments in 2011 in the dataset represents, on average, 1.40 persons
- death registrations weight - for all death registrations in the period 10 August 2011 to 27 September 2012 inclusive, the average weight is 153,451 / 123,907 = 1.24; that is, each of the 123,907 death registration records in the dataset represents, on average, 1.24 death registrations.

21 MBS/PBS weights were benchmarked according to the following groups: sex, age group, state/territory, Remoteness Areas, type of treatment (as per Appendix 1 and Appendix 2) and death flag. These were the same as those used for the Mental Health Services-Census Integrated Dataset with the addition of the death flag which indicated those MBS/PBS records with an associated death notification for the period 10 August 2011 to 27 September 2012, as recorded on Medicare and provided by the Department of Human Services. Weights for different subgroups within the population of persons who accessed mental health-related treatments in 2011 differ as linkage rates vary between different subgroups (that is, different groups of persons were more, or less, likely to link to the 2011 Census than other groups).

22 Death registrations weights were benchmarked according to the following groups: sex, age group, state/territory, Remoteness Areas, Socio-economic Indexes for Areas and cause of death. These were the same as those used for the Mortality, Enhanced Characteristics, Australia, 2011-12 dataset. Weights for death registrations with different characteristics differ as linkage rates vary between death registrations (that is, death registrations with different characteristics were more, or less, likely to link to the 2011 Census).

23 The subset of 38,689 records of persons who accessed mental health-related treatments in 2011 for whom a death registration was recorded for the period 10 August 2011 to 27 September 2012 does not represent the total number of deaths of persons who accessed mental health-related treatments, as these records are subject to two sources of under-linkage: 1. that from linking records of persons who accessed mental health-related treatments in 2011 to the 2011 Census, and 2. that from linking death registrations to the 2011 Census.

24 To account for both sources of under-linkage to obtain the total number of death registrations of persons who accessed mental health-related treatments in 2011, weights (MBS/PBS/death registrations weight) for these records were calculated by multiplying both weights described above; that is, MBS/PBS weight * death registration weight. To illustrate:

- for persons who accessed mental health-related treatments in 2011 for whom a death registration was recorded between 10 August 2011 and 27 September 2012, their average MBS/PBS weight was 1.59 while their average death registration weight was 1.24
- the average weight for these records was therefore approximately 1.97 (that is, 1.24 * 1.59), noting that weights for these records also differ according to their different characteristics as some records were more, or less, likely to link to the 2011 Census than others
- these 38,689 records therefore represent a total of 75,858 death registrations for persons who accessed mental health-related treatments in 2011.

DEATH RATES

25 Cause-specific death rates in this publication are presented as deaths per 100,000 population, while all other rates are presented as deaths per 1,000 population.

26 To allow comparisons between the population of persons who accessed mental health-related treatments in 2011 and the total Australian population, death rates have been age standardised to account for differences in the age structure of the two populations.

DATA QUALITY

27 All data collections are subject to sampling and non-sampling error. Non-sampling error may occur in any data collection. Possible sources of non-sampling error include errors in reporting or recording of information, occasional errors in coding and processing data, and errors introduced by linkage processes.

MBS data

28 MBS data includes Medicare-subsidised mental health-related services provided by psychiatrists, general practitioners (GPs), psychologists and other allied health professionals—including mental health nurses, occupational therapists, some social workers and Aboriginal health workers. These services are defined in the Medicare Benefits Schedule (see Appendix 1). In this publication, consultations with GPs refer to those that were recorded as mental health-related services. Consultations with GPs that may have involved discussion of mental health issues but were not recorded as mental-health related services were not captured in the Mental Health Services-Census Integrated Dataset.

29 Medicare data covers services that are provided out-of-hospital (for example, in doctors' consulting rooms) as well as in-hospital services provided to private patients whether they are treated in a private or public hospital. The figures do not include services provided to public patients in public hospitals or services that qualify for a benefit under the Department of Veterans Affairs National Treatment Account. States and territories are custodians of public hospital data (Endnote 9).

PBS data

30 PBS data include subsidised prescription medication from the following groups: Antipsychotics, Anxiolytics, Hypnotics and Sedatives, Antidepressants, and Psychostimulants, agents used for ADHD and nootropics (see Appendix 2).

31 PBS data refer only to prescriptions scripted by registered medical practitioners who are approved to work within the PBS and to paid services processed from claims presented by approved pharmacists who comply with certain conditions. They exclude adjustments made against pharmacists' claims, any manually paid claims or any benefits paid as a result of retrospective entitlement or refund of patient contributions (Endnote 10).

32 PBS data exclude non-subsidised medications, such as private and over-the-counter medications. Under co-payment prescriptions (where the patient co-payment covers the total costs of the prescribed medication) data are available from mid-2012; and therefore not available for 2011 (Endnote 10).

33 Data does not include the Repatriation Pharmaceutical Benefits Scheme (RPBS) which is subsidised by the Department of Veterans' Affairs (Endnote 11).

34 Data for Aboriginal and Torres Strait Islander Australians are not presented in this publication. The Aboriginal Health Services Program, funded by the PBS, does not use the Medicare PBS processing system (Endnote 10). Medications provided through this program are therefore not captured in the Mental Health Services-Census Integrated Dataset. Most affected are data for Remote and Very Remote areas and data for the Northern Territory.

Census of Population and Housing

35 The 2011 Census measured the number and key characteristics of people who were in Australia on Census night, 9 August 2011. For information about the 2011 Census please refer to Census 2011 Reference and Information and Census Data Quality on the ABS website.

Geography

36 Geographies used in linkage of the source datasets may not align between MBS and PBS and the Census, for a range of reasons, including:

- differences arising because MBS and PBS Mesh Block are based on postal address whereas Census Mesh Block was based on address of usual residence
- persons may have changed their address but not updated Medicare records.

37 Medicare claims data used in this dataset are based on the Mesh Block of the enrolment address of the patient. As clients may receive services in locations other than where they live, these data do not necessarily reflect the location in which services were received. Data therefore reflects geographic information about the recipient of mental health-related treatments, rather than where they received treatments.

Remoteness Areas

38 People living in Remote and Very Remote areas of Australia are under-represented in the data. This may be for a number of reasons including:

- GPs are less likely to charge under Medicare in Remote areas (Endnote 12)
- non-metropolitan hospitals are more likely to admit patients, and people in Remote areas are more likely to attend hospital accident and emergency departments for primary care medical consultations than people from Major Cities (Endnote 12). People accessing these hospital services may be public inpatients and therefore not in scope. States and territories are the custodians for this data and it is not included in the dataset
- in 2010-11, despite there being more GPs in Remote areas, there were about half the GP services provided per person in Very Remote areas as in Major Cities (Endnote 13)
- the Aboriginal Health Services Program is funded by the PBS however person-level data is not in the PBS processing system. Data from Remote and Very Remote areas, and the data from the Northern Territory are most affected (Endnote 10)
- Section 100 of the National Health Act, 1953 allows for the Minister to make special arrangements for the supply of medications to people living in isolated areas. These medications do not appear in the PBS data.

39 Numbers of deaths and death rates for Remote and Very Remote areas of Australia, as well as the Northern Territory, should be interpreted with caution due to under-representation of deaths amongst these populations.

40 The Census also undercounts the number of people living in some areas of Australia more than others. In 2011, the Northern Territory recorded the highest net undercount rate of all states and territories (6.9%) and showed the largest difference in the net undercount rate between its greater capital city and rest of state region (3.7% and 10.9% respectively) (Endnote 14).

CLASSIFICATIONS

41 Classifications used in the Mental Health Services-Census-Mortality Integrated Dataset include:

- Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2011 (cat. no. 1270.0.55.001)
- Remoteness Areas are presented according to the Australian Statistical Geography Standard (ASGS): Volume 5 - Remoteness Structure, July 2011 (cat. no. 1270.0.55.005)
- Index of Relative Socio-economic Disadvantage quintiles are presented according to Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2011) (cat. no. 2033.0.55.001)
- Causes of death are coded and presented according to the World Health Organization International Classification of Diseases.

International classification of diseases

42 Causes of death statistics are coded to the International Classification of Diseases 10th Revision (ICD-10). The ICD is the international standard classification for epidemiological purposes and is designed to promote international comparability in the collection, processing, classification, and presentation of causes of death statistics. The classification is used to classify diseases and causes of disease or injury as recorded on many types of medical records as well as death records. The ICD has been revised periodically to incorporate changes in the medical field.

ROUNDING

43 Estimates presented in this publication have been rounded. Proportions, rates and rate comparisons are calculated using unrounded estimates. Calculations using rounded estimates may differ from those published.

ACKNOWLEDGEMENT

44 The ABS acknowledges the continuing support provided by the National Mental Health Commission, the Department of Health, the Department of Human Services and state and territory Registrars of Births, Death and Marriages for this project. The provision of data by the Department of Health and the Department of Human Services as well as funding from the National Mental Health Commission was essential to enable this important work to be undertaken. The enhancement of mental health statistics through data linkage by the ABS would not be possible without their cooperation and support.

45 The ABS also acknowledges the importance of the information provided freely by individuals in the course of the 2011 Census. Census information provided by individuals to the ABS is treated in the strictest confidence as is required by the Census and Statistics Act (1905). MBS and PBS information provided by the Department of Health and the Department of Human Services to the ABS is treated in the strictest confidence as is required by the National Health Act (1953) and the Health Insurance Act (1973). Confidentiality of data on death registrations provided by state and territory Registrars of Births, Deaths and Marriages and the National Coronial Information System (NCIS) are protected by the Census and Statistics Act (1905) and the Privacy Act (1988).

ENDNOTES

1 Promoting mental health: concepts, emerging evidence, practice: summary report / a report from the World Health Organization, Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation (VicHealth) and the University of Melbourne. (2004), viewed 14 August 2017, <http:/www.who.int/mental_health/evidence/en/promoting_mhh.pdf>

2 National Mental Health Commission. Equally Well Consensus Statement: Improving the physical health and wellbeing of people living with mental illness in Australia. Sydney NMHC, 2016.

3 Canadian Mental Health Association, 2017, Connection between Mental and Physical Health, viewed 14 August 2017, <https://ontario.cmha.ca/documents/connection-between-mental-and-physical-health/>

4 Australian Institute of Health and Welfare, 2017, Mental Health Services in Australia, viewed 14 August 2017, <https://mhsa.aihw.gov.au/background/>

5 Australian Institute of Health and Welfare, 2017, Metadata Online Registry, National Healthcare Agreement: PI 16–Potentially avoidable deaths, 2017, viewed 24 August 2017, <http://meteor.aihw.gov.au/content/index.phtml/itemId/630024>

6 Australian Bureau of Statistics, 2015, Causes of Death, Australia, cat. no. 3303.0, viewed 24 August 2017, <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/3303.0~2015~Main%20Features~Stroke~10003>

7 Fratiglioni L, De Ronchi D, Aquero-Torres H 1999. Worldwide Prevalence and Incidence of Dementia. Drugs & Aging. 1999 Nov; 15 (5): 365-375.

8 SANE Australia website, viewed 24 August 2017, <https://www.sane.org/images/PDFs/1002-rb11.pdf>

9 Department of Human Services, 2014, Medicare Item Reports, viewed 30 May 2016, <https://www.medicareaustralia.gov.au/statistics/mbs_item.shtml>

10 Australian Institute of Health and Welfare, 2014, Medicare-subsidised mental health-related prescriptions, viewed 30 May 2016, <https://mhsa.aihw.gov.au/resources/prescriptions/>

11 Department of Veterans' Affairs, 2014 Repatriation Pharmaceutical Benefits Scheme, viewed 30 May 2016, <http://www.dva.gov.au/about-dva/accountability-and-reporting/annual-reports/annual-reports-2012-13/department-veterans-12>

12 Australian Institute of Health and Welfare, 2005, Rural, regional and remote health: Information framework and indicators, Version 1b, Rural Health Series Number 6, viewed 30 May 2016, <http://webarchive.nla.gov.au/gov/20170421134153/http://www.aihw.gov.au/publication-detail/?id=6442467780>

13 Australian Institute of Health and Welfare, Jun 2014, Australia's Health 2014, Chapter 5: Health behaviours and other risks to health: Health in regional and remote areas, viewed 30 May 2016, <http://webarchive.nla.gov.au/gov/20170421065200/http://www.aihw.gov.au/publication-detail/?id=60129547205>

14 Australian Bureau of Statistics, 2012, Estimates of Net Undercount, Census of Population and Housing - Details of Undercount, 2011, cat. no. 2940.0, viewed 30 May 2016, <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2940.0~2016~Main%20Features~Estimates%20of%20Net%20Undercount~6>

FOR MORE INFORMATION . . .

www.abs.gov.au the ABS website is the best place for data from our publications and information about the ABS.

INFORMATION AND REFERRAL SERVICE

Our consultants can help you access the full range of information published by the ABS that is available free of charge from our website. Information tailored to your needs can also be requested as a 'user pays' service. Specialists are on hand to help you with analytical or methodological advice.

POST Client Services, ABS, GPO Box 796, Sydney NSW 2001

FAX 1300 135 211

EMAIL client.services@abs.gov.au

PHONE 1300 135 070

FREE ACCESS TO STATISTICS

All ABS statistics can be downloaded free of charge from the ABS web site.

WEB ADDRESS www.abs.gov.au