

SUICIDAL BEHAVIOURS IN MEN

Determinants and Prevention in Australia

Kairi Kõlves, Eeva-Katri Kumpula and Diego De Leo



Suicidal behaviours in men: Determinants and prevention in Australia

Kairi Kõlves, Eeva-Katri Kumpula
and Diego De Leo

Australian Institute for Suicide Research and Prevention

National Centre of Excellence in Suicide Prevention

WHO Collaborating Centre for Research and Training in Suicide Prevention

Griffith University



WHO Collaborating Centre
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Inquiries regarding this publication should be directed to:

Australian Institute for Suicide Research and Prevention

Mt Gravatt Campus

Griffith University

Mt Gravatt, Qld 4122

Phone: (07) 3735 3382

Fax: (07) 3735 3450

email: aisrap@griffith.edu.au

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Kumpula, Eeva-Katri, author.

De Leo, Diego, 1951- author.

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Executive Summary

The size of the problem and scope of the report

According to the World Health Organization (WHO), suicide is one of the leading causes of mortality worldwide. Compared to Australian women, Australian men are three-times more likely to take their own lives. Furthermore, specific male groups — such as Aboriginal and Torres Strait Islander men, young men, elderly men, men with mental illness, and men who have been marginalised, including gay and bisexual men — are at an elevated risk. Suicide accounts for 8% of preventable deaths in Australian men, and more than one-third of preventable deaths in young Australian men aged 15-24 years (Page et al., 2006). Problems with male help-seeking habits and perceptions have led to difficulties in prevention strategies and appropriate interventions reaching men.

The present report aims to investigate the phenomenon of suicidal behaviour in men. The report presents current research on the factors behind male vulnerability to suicide, how male suicides can be prevented, and activities currently undertaken that aim to reduce suicidal behaviours, with a focus on Australian males.

Overview of the report

Chapters 1 and 2 examine the epidemiology and determinants of male suicidal behaviours. This forms the basis of understanding the scope of the problem and places suicidal behaviours as a multidimensional phenomenon with several risk factors.

Chapter 3 introduces specific male risk groups that are especially vulnerable to suicide, while Chapter 4 reviews predisposing environmental settings. These chapters highlight the male groups that are at most risk of suicide, and consequently should be specifically targeted by suicide prevention efforts, and the settings in which they become most vulnerable. Chapter 5 presents the direct and indirect cost impacts of suicides on the Australian economy. The need for research to inform policies is discussed.

Chapter 6 reviews male help-seeking patterns that affect treatment options. Chapter 7 reviews different suicide prevention efforts from international and Australian literature. These chapters highlight which prevention efforts have been shown to be effective and where more research is needed.

Recommendations

Greater recognition of men as a group that is vulnerable to suicide is needed by federal and state governments, health-service providers and the academic community. Some possible strategies to reduce male suicide rates in Australia are:

- Improved detection of depression, other mental illnesses, and suicidality, to reach men who do not approach health care services;
- Implementation of mental health awareness campaigns to improve recognition of mental health disorders most commonly suffered by men and to improve their help-seeking behaviours;
- Improved exposure to mental health promotion campaigns in school settings from an early age. Male students, especially, should learn healthy coping strategies and problem-solving skills. This may reduce the perceived stigma of mental illness and improve awareness of available resources that can lead to beneficial impacts on suicidality;
- Strengthened suicide prevention efforts targeting high-risk groups, such as young and old men, Aboriginal and Torres Strait Islander men, men of sexual minorities, and men in high-risk settings. The needs of each specific group should be considered and addressed specifically by involving the communities in designing interventions which offer appropriate suicide prevention initiatives;
- Increased empowerment for men so they can find their own solutions to life problems. This will provide them with feelings of accomplishment and improve their resilience;
- Targeted public awareness campaigns and highlighted positive male role models to

encourage men to seek help and overcome potentially dangerous stereotypical masculine perceptions of stoicism and self-sufficiency;

- Improved peer support and community inclusion to provide men with an effective social support network to supplement professional healthcare;
- Further investigation on the male pattern of depression to better detect and address the symptoms;
- Focused research investigating the outcomes and effectiveness of male suicide prevention efforts to ensure that best practices are implemented;
- Increased restrictions on access to different means of suicide; for example, more extensive fencing at appropriate high risk locations such as high bridges, busy railways, and motorways;
- Further focus on treatment programs for alcohol use disorders, with excessive alcohol use limited by legislation. Awareness

campaigns should educate the community that alcohol, and other substances, should not be used as a coping strategy for depression or suicidality; and,

- Continued responsible media reporting of suicides so as to prevent vulnerable people from imitating these suicidal acts.

As presented in the report, men are a group that has been traditionally difficult to reach with suicide prevention interventions. Their disproportionate burden of suicide must be addressed and more targeted suicide prevention efforts must be developed. A better understanding of masculine help-seeking behaviours, and the associated challenges, should inform this process to improve outcomes.

Chapter 1

Epidemiology of male suicidal behaviours

Jerneja Sveticic, Allison Milner, Kairi Kõlves and Diego De Leo

Suicide

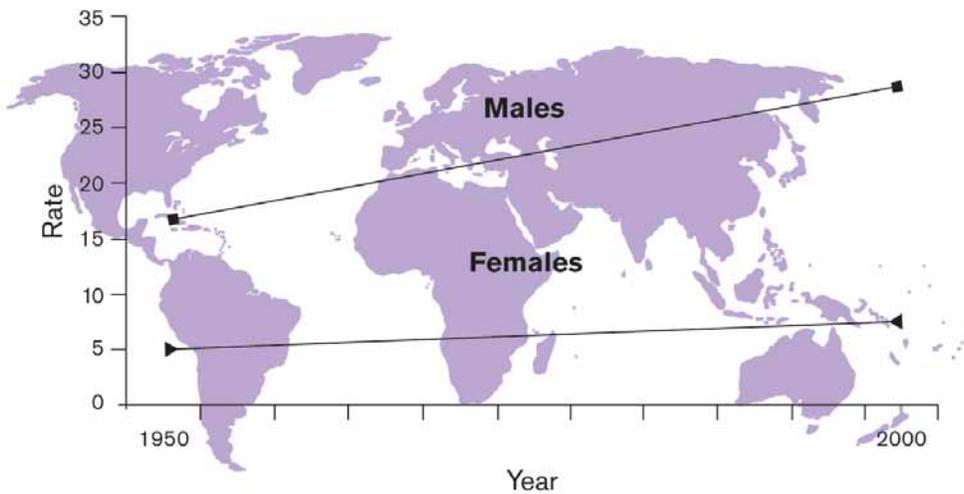
Global trends of suicide in males

According to the World Health Organization (WHO), suicide is one of the leading causes of mortality worldwide. The latest estimates show that global annual suicide mortality is 14.5 deaths per 100,000 people. This means about one million deaths by suicide every year, or around 3,000 deaths a day (World Health Organization, 2011). Currently, suicide accounts for the

largest share of the intentional injury burden in developed countries and is projected to become an even greater contributor to the global burden of disease over the coming decades (Mathers and Loncar, 2006). In fact, by the year 2020, the annual incidence of suicide is expected to exceed 1.5 million (World Health Organization, 2011).

Figure 1 shows the change of global suicide rates for males and females between 1950 and 2000. The rate for men increased over this period while the rate for women remained relatively stable.

Figure 1. Change of global suicide rates, 1950-2000



Source: World Health Organization, 2002a
Reproduced with kind permission from WHO

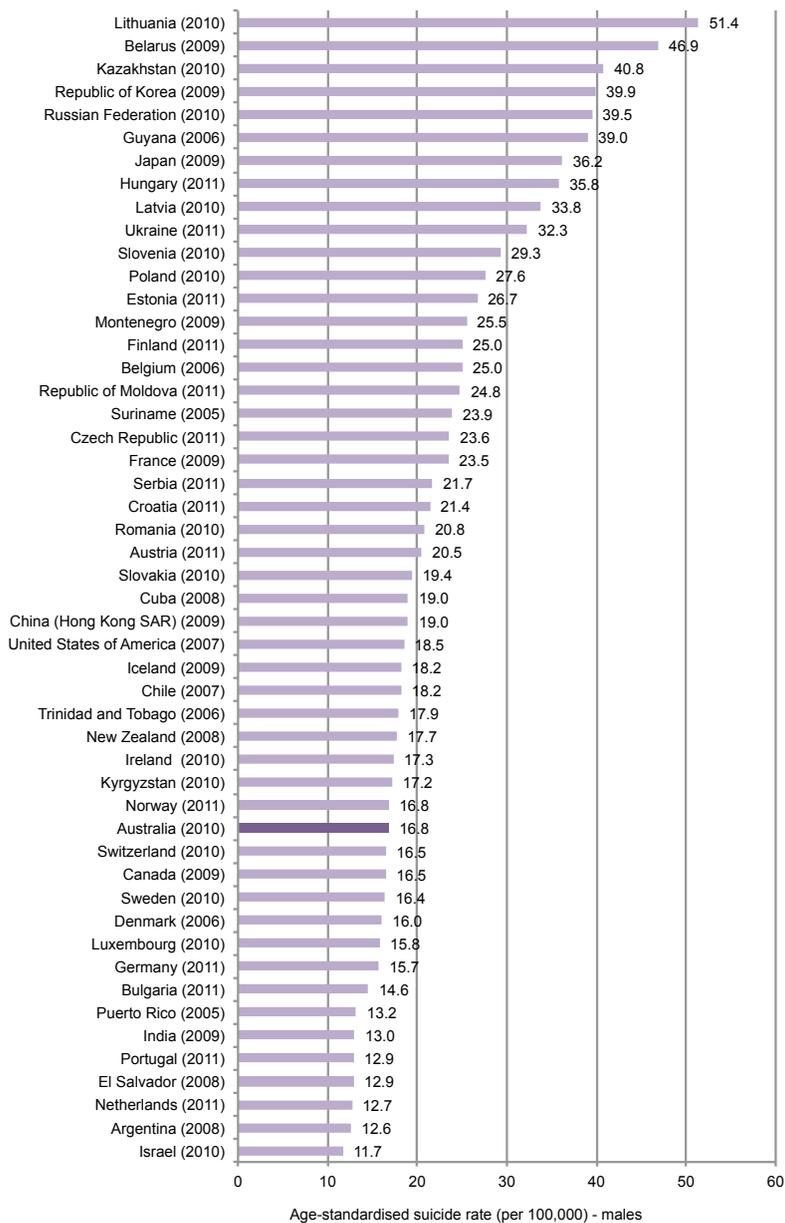
Traditionally, the rates of male and female suicide mortality have been combined when presented in the literature (the total suicide rate); however, the current epidemiological practice is to present rates according to sex and age, particularly when relevant differences in terms of trends or risk factors are noted (Bertolote and Fleishman, 2002a). Figure 2 presents age-standardised suicide rates for males, obtained from the World Health Organization Statistical Information System (WHOSIS, retrieved 2011; World Health Organization, 2011). The rates are presented for the 50 countries with the highest rates of suicide among males, using the most recent year available on WHOSIS. The most recent and complete data available for Australia was for the year 2010, as obtained from the Australian Bureau of Statistics (Australian Bureau of Statistics, 2013).

The highest rates of male suicide were recorded in Eastern European countries, namely Lithuania (51.4 per 100,000), Belarus (46.9 per 100,000), and Kazakhstan (40.8 per 100,000). This was

followed by the Republic of Korea (39.9 per 100,000) and Russian Federation (39.5 per 100,000). With a male suicide rate of 16.8 per 100,000, Australia was at 36th place in the list (WHOSIS, retrieved 2013; ABS, 2013).

However, it should be noted that there are great discrepancies in the completeness and regularity of data provided to the WHO data bank on mortality by its member states. Bertolote and Fleischman (2002a) report that no data were available from the WHO African region, scarce information was available from the WHO South-East Asia and Eastern Mediterranean regions, and irregular information was sent from many countries of Latin America and the Western Pacific region. This remains true today. Data are most regularly received from countries in the European region. Nevertheless, the global epidemiological picture is reliable enough to allow for comparisons of international suicide rates over time (Mathers et al., 2005).

Figure 2. Age-standardised suicide rates for males, 50 countries with highest rates (latest available)

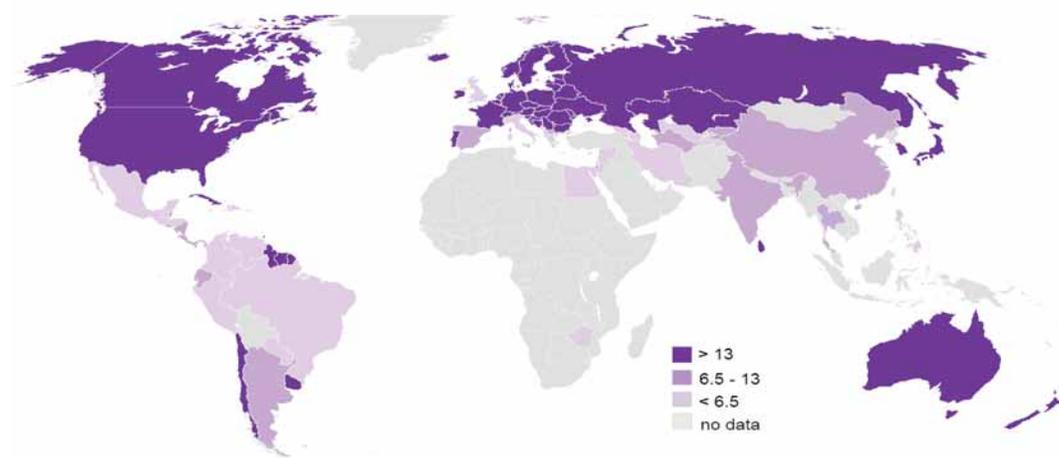


Data sources: WHOSIS (World Health Organization, 2013), Australian Bureau of Statistics, 2013

Using the latest data available from the WHO, the dispersion of male suicide rates across the world is graphically presented in Figure 3. The map shows a concentration of countries with the

highest recorded suicide mortality in males in Eastern Europe and the Russian Federation, while the lowest rates were recorded in South America and countries on the Arabic peninsula.

Figure 3. World map of suicide rates in males (WHO, 2011)



Source: World Health Organization, 2011
Reproduced with kind permission from WHO

Worldwide suicide rates in males and females differ significantly in most countries. In developed countries, on average, males die by suicide 2 – to 4-times more often than females. In contrast, Asian countries typically show much lower male-to-female ratios, especially in rural areas. Up until recently, China was the only country in the world where the female rate of suicide was higher than the male suicide rate (Qin and Mortensen, 2002). However, most recent data (2009) showed that

male suicide rates are now exceeding female suicide rates in China (Chen et al., 2012). Table 1 presents countries with the highest and lowest male-to-female ratios of suicide rates, obtained from the WHOSIS databank and other sources. The largest differences between male and female suicide rates are reported in Belize (9.4/1), Latvia (8.4/1) and Greece (8.3/1). The lowest male-to-female ratios are recorded in Bahrain and Kuwait (each 1.1/1) and China (1.2/1).

Table 1. Selected countries with highest and lowest male-to-female ratio of suicide rates

10 countries with highest rate ratio:	Male-to-female suicide rate ratio
Belize (2008)	9.4
Latvia (2010)	8.4
Greece (2010)	8.3
Georgia (2010)	8.0
Poland (2010)	7.3
Armenia (2009)	7.2
Republic of Moldova (2011)	6.7
Slovakia (2010)	6.4
Cyprus (2011)	6.1
Russian Federation (2010)	6.0
Australia (2010)*	3.4
10 countries with lowest rate ratio:	
Peru (2007)	1.9
Republic of Korea (2009)	1.8
China (Hong Kong SAR) (2009)	1.8
Singapore (2006)	1.7
India (2009)	1.7
Albania (2003)	1.4
Tajikistan (2001)	1.3
China (2009)**	1.2
Bahrain (2006)	1.1
Kuwait (2009)	1.1

Data sources: WHOSIS (World Health Organization, 2013);

*Australian Bureau of Statistics, 2013;

**Chen et al., 2012

Data for Australia show a rate ratio of 3.3/1 in the year 2010. This placed Australia among the

countries with a moderate male-to-female suicide rate ratio.

Reliability of suicide mortality data

The accuracy of suicide statistics is of relevance not only for researchers monitoring the trends of suicide mortality and identifying specific groups at risk for suicide, but also for sensible policy-making in mental and public health, particularly the planning and funding of suicide prevention strategies. However, it has long been acknowledged that any interpretations of official mortality records on suicide should be approached with a degree of caution (Sainsbury and Jenkins, 1982; Andriessen, 2006). This is particularly relevant when comparing suicide rates between countries that often adopt different requirements for a death to be recorded as suicide. Certification of death due to suicide can be made by different bodies, including police, physicians, coroners or medical examiners. Moreover, in some countries, external evidence of intent, such as a suicide note, is required for a death to be recognised as suicide; in others, a verdict can be reached on the basis of a judgment of suicidal intent (Hawton and van Heeringen, 2009). In general, a coronial verdict of suicide requires a high degree of certainty (“burden of proof”), such as the presence of a suicide note, evidence of previous suicidal behaviour, psychiatric illness or significant social events.

In Australia, the accuracy of suicide reporting has received much attention following observations of a growing discrepancy between data released by the Australian Bureau of Statistics and those obtained from the Queensland Suicide Register (De Leo, 2007; Williams et al., 2010). In recent years, the Australian Bureau of Statistics has

acknowledged that the quality of suicide data might have been affected by an increase in the number of open coroners’ cases at the time of publication of statistics. Where “cases are not finalised and the findings are not available to the Australian Bureau of Statistics in time for publication of causes of death statistics, deaths are coded to other accidental, ill-defined or unspecified causes rather than suicide” (Australian Bureau of Statistics, 2006a, p.73). Consequently, in 2009, the Australian Bureau of Statistics announced significant changes in its quality assurance processes, particularly aimed at assessing and improving the quality of suicide coding. The most relevant change introduced stated that “all coroner certified deaths registered after 1 January 2007 will be subject to a revision process. This will enable the use of additional information relating to coroner certified deaths as it becomes available over time, resulting in increased specificity of the assigned codes” (Australian Bureau of Statistics, 2009, p.56). Since then, all coroner-certified deaths are re-examined 12 and 24 months after initial processing, ultimately yielding three sets of suicide data for each reference year: preliminary, revised, and final.

At the time of writing of this report, Australian Bureau of Statistics has completed revisions for years 2006, 2007, 2008, 2009, data for 2010 are in its revised format, while data for 2011 are still preliminary. Results presented in this chapter should be interpreted bearing these revisions in mind, particularly the fact that suicide rates for years 2010 and 2011 are expected to change in subsequent years.

Epidemiology of suicide in males in Australia

Burden of suicide in Australia

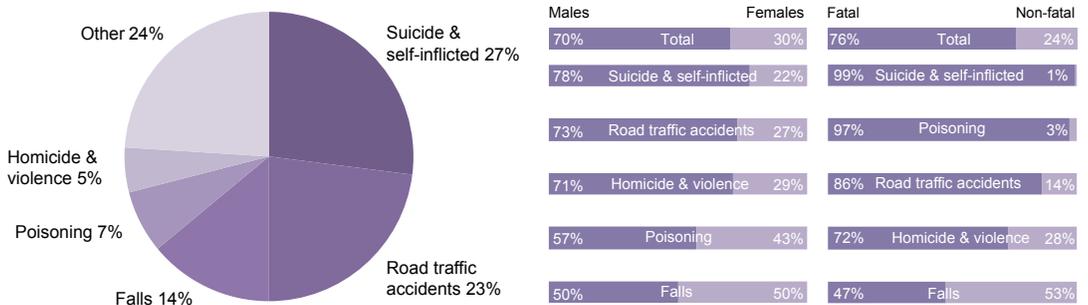
In Australia, about 2000 people die from suicide every year; this death rate is well in excess of transport-related mortality. Between 2000 and 2010, suicides accounted for 1.7% of all deaths in Australia (Australian Bureau of Statistics, 2012).

In 2006, a study on avoidable mortality conducted in Australia showed that almost three-quarters of deaths among persons younger than 75 years were avoidable. Among avoidable mortality conditions, suicide and self-inflicted injuries were responsible for 6.5% of avoidable deaths (8.0% in males and 3.9% in females), ranking third after ischemic heart disease and lung cancer. In the 25-44 years age group, suicide was the leading cause of avoidable mortality for both males (29.5%) and females (16.7%), while in the 15-24 years age

group, suicide accounted for almost one-third of avoidable deaths (Page et al., 2006).

The Australian Burden of Disease (ABD) study, conducted in 2003, measured the national burden of disease in terms of the disability-adjusted life year (DALY). DALY describes the “amount of time lost due to both fatal and non-fatal events, that is, years of life lost due to premature death coupled with years of ‘healthy’ life lost due to disability” (Begg et al., 2007, p.2). Suicide and self-inflicted injuries were found to have contributed a total of 49,916 DALYs, with more than two-thirds accounted for by males. In addition, self-inflicted injuries were found to be responsible for 27% of the total injury burden in Australia, with the greatest burden observed in men aged 25-64 years. Figure 4 shows that events with fatal outcomes comprised the great majority of the burden of disease, and that males accounted for 78% of the total burden due to suicide in Australia (Begg et al., 2007).

Figure 4. Injury burden (DALYs) by specific cause expressed as: (a) proportions of total, (b) proportions by sex, and (c) proportions due to fatal and non-fatal outcomes, Australia, 2003



Source: Begg et al., 2007, p.66
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Trends of suicide mortality in males in Australia

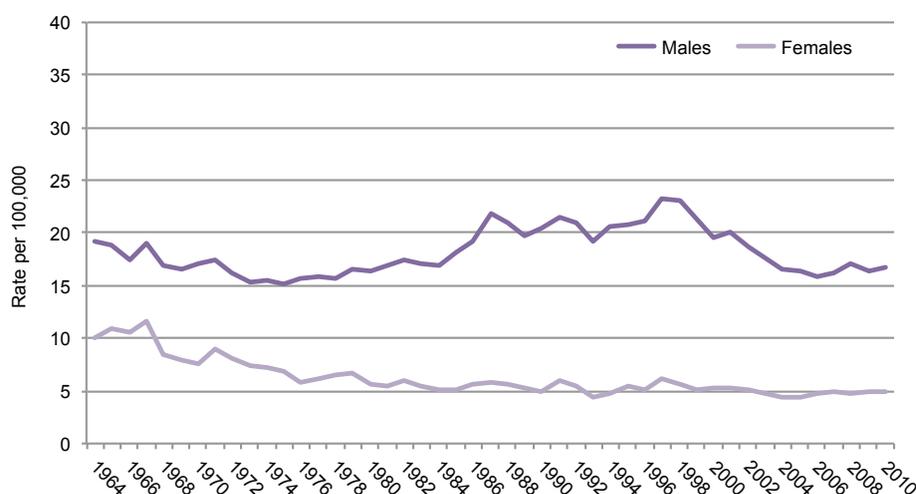
The following sections of the report present trends of suicide rates in males in Australia, analyses of suicide mortality by age and suicide methods, and comparisons of suicide mortality between Australian states and territories. Data used for these analyses have been obtained from the publications *Causes of Death, Australia* and *Suicides, Australia, 2010* by the Australian Bureau of Statistics. Suicide rates are expressed as a given number of deaths per 100,000 inhabitants per year; this uses the Estimated Resident Population (also published annually by the Australian Bureau of Statistics).

Figure 5 shows trends of suicide rates in males between 1964 and 2010. Significant fluctuation of suicide mortality can be observed, starting with a

slight decline from 19.1 per 100,000 in 1964 to 15.1 per 100,000 in 1975, followed by a decade of relatively stable suicide rates. During the 1980s and 1990s, suicide mortality in males markedly increased and reached its peak in 1997 with a suicide rate of 23.3 per 100,000. Since then, rates have declined by about one-third, dropping to an average of approximately 16.4 per 100,000 in the previous five years.

In comparison, trends of female suicide mortality over the same time period display a markedly different picture, confirming that the epidemiology of suicide always needs to be analysed separately for males and females. A marked decline can be observed between the highest rate (11.7 per 100,000) recorded in 1967 and the mid-1980s rates of about 5.5 per 100,000. Since then, Australian female suicide rates have been relatively stable at about 5 per 100,000.

Figure 5. Suicide rates by year and sex, Australia, 1964–2010

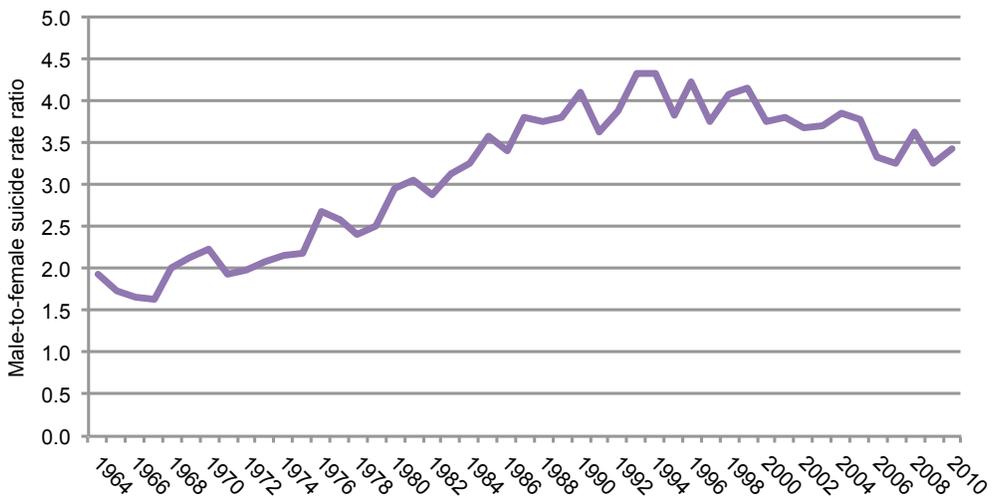


Data source: Australian Bureau of Statistics, 2013

Over the last few decades, males in Australia have been dying by suicide around 3 to 4-times more frequently than females. However, Figure 6 shows that the magnitude of this difference has changed significantly over time. A steep increase can be observed from the mid-1960s, when the ratio was about 2/1, to its peak in the mid-1990s,

when male suicide rates were about 4-times higher than female suicide rates. The largest difference between male and female suicide rates was recorded in 1993 and 1994 (4.3/1). Since 2000, the gender ratio has been decreasing and, in recent years, has averaged at about 3.5/1.

Figure 6. Male-to-female suicide rate ratio, Australia, 1964-2010



Data source: Australian Bureau of Statistics, 2013

Suicide in males by age groups

Trends of suicide mortality in males for broad age groups, during the period 1964-2010, are shown in Figure 7. The total rates showed a slow decline during the first two decades. This pattern was also reflected in the trends of suicide among all age groups older than 35 years. Specifically, between 1964 and 1979, total male suicide rates declined by 14% (from 19.1 to 16.5 per 100,000), suicide rates among 35-45 year olds declined by 24% (from 33.0 to 25.1 per 100,000), suicide rates among 55-74 year olds declined by 38% (from

37.4 to 23.1 per 100,000), and rates in the 75+ years age group declined by 53% (from 41.0 to 19.2 per 100,000). In contrast, during this same period, the suicide rates of young males (less than 35 years) increased by 22% (from 16.7 to 20.4 per 100,000). The increase in suicide rates among males aged 15-34 years continued until 1998 when it reached its peak at 35.4 per 100,000. This was followed by a sharp decline of 42% during the period 1999-2010, when the suicide mortality of young Australian males again reached levels

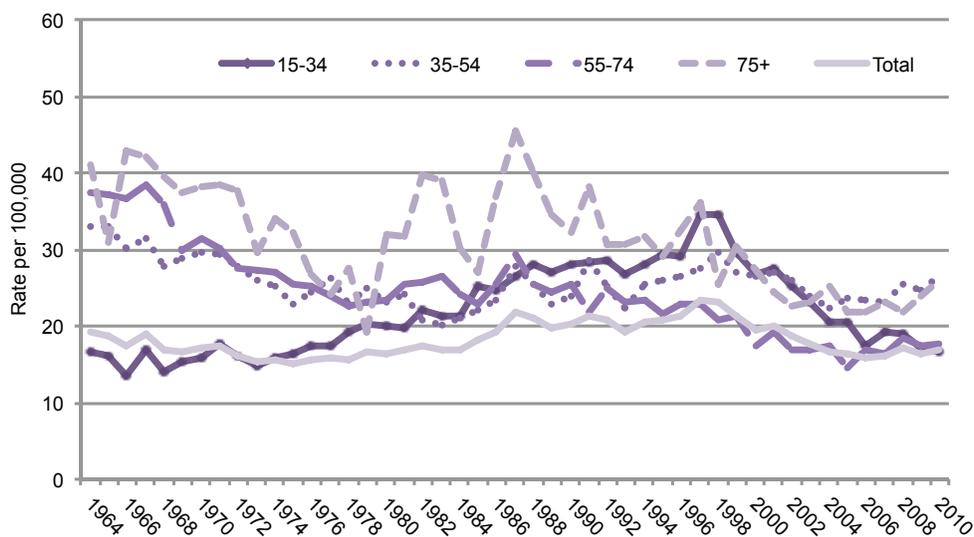
similar to those observed in the 1960s and first half of the 1970s.

The suicide rates of males aged 35-54 and 55-74 years were relatively aligned until 1993; since then, the suicide rates among 35-54 year olds have been higher than those of 54-74 year olds. Suicide rates among 35-54 year olds reached their peak in 1998 at 29.5 per 100,000; after that, rates started to decline steadily, finally averaging 24.6 per 100,000 in the last five years. Similarly, suicide rates among 55-74 year old males have been steadily declining since their 1987 peak of 29.2 per 100,000; in the last five years of the

period studied, they have averaged about 17.3 per 100,000.

Males aged 75 years and older show a somewhat distinct trend of suicide mortality over the same time period. Figure 7 shows that, since the mid-1960s, the suicide rate of elderly Australian males has had interchanging periods of marked increases and decreases. This is most noticeable during the 1980s, when the rates doubled from their lowest value of 18.2 per 100,000 in 1979 to 45.4 per 100,000 in 1987. Since 2000, the suicide rate in this age group has averaged 23.7 per 100,000.

Figure 7. Trend of suicide rates in males by age groups, Australia, 1964-2010



Data source: Australian Bureau of Statistics, 2013

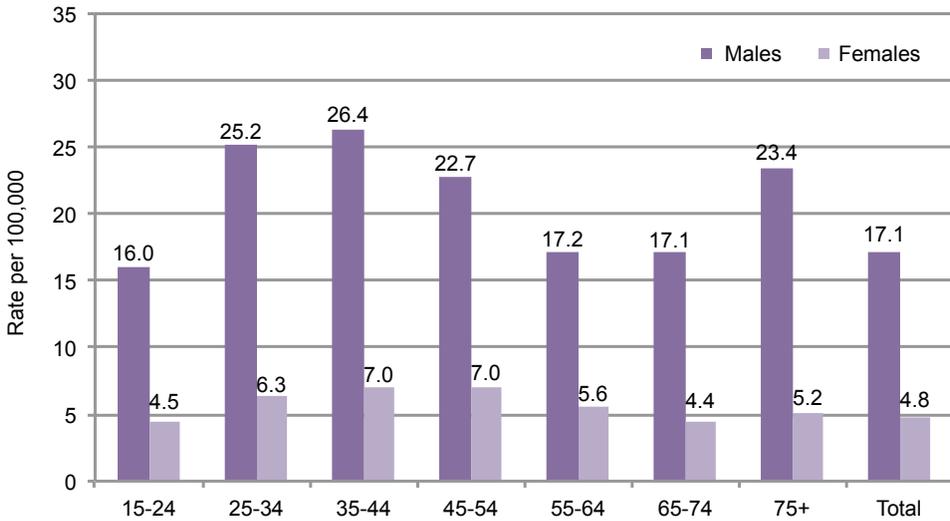
A more detailed presentation of the male suicide rates by age groups (15-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years, 65-75

years, and older than 75 years) is available in Appendix A of this report.

Because of the considerable fluctuations in suicide rates of the selected age groups over the last five decades, average rates for each age group have not been presented. Instead, these were analysed for the period 2001-2010, and are shown in Figure 8. These results show that the highest male suicide rates have been among those aged 35-44 and 25-34 years (26.4 and 25.2 per 100,000, respectively). This was followed by suicide rates in males aged 75 years and older

(23.4 per 100,000), 45-54 years (22.7 per 100,000), 55-64 (17.2 per 100,000) and 65-74 years (17.1 per 100,000). The lowest male suicide rates were recorded among those aged 15-24 (16.0 per 100,000). In comparison, the highest female suicide rates were recorded among those aged 35-44 and 45-54 years (7.0 per 100,000), and the lowest among those aged 65-74 years (4.4 per 100,000).

Figure 8. Suicide rates by age group and sex, Australia, 2001-2010



Data source: Australian Bureau of Statistics, 2013

Across all ages, suicide rates in males are considerably higher than in females; however, there are significant differences between age groups (shown in Table 2). Among the elderly aged 75 years and older, Australian males died by suicide 4.5-times more often than females.

A gender ratio higher than the overall average of 3.6/1 was also recorded in the age groups 25-34 (4.0/1), 65-74 (3.9/1) and 35-44 years (3.7/1). The gender rate ratio was the lowest in 55-64 years age group (3.0/1).

Table 2. Male-to-female suicide rate ratio by age group, Australia, 2001-2010

Age group	15-24	25-34	35-44	45-54	55-64	65-74	75+	Total
Gender ratio	3.5	4.0	3.7	3.2	3.0	3.9	4.5	3.6

Data source: Australian Bureau of Statistics, 2013

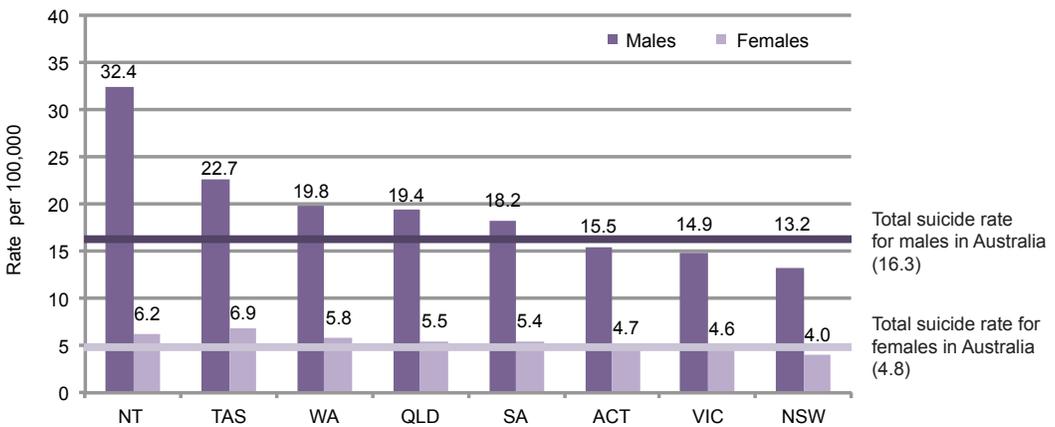
Suicide in males by state and territory

The following section provides a comparison of suicide mortality rates in Australian states and territories between 2006 and 2010, based on Australian Bureau of Statistics data. Age-standardised death rates are presented, which enables comparisons to be made between populations with different age structures by relating them to a standard population (the current standard population is the Australian population as at 30 June 2001).

In Figure 9, the total suicide rates for males and females over the period 2006-2010 are marked with horizontal lines (16.3 for males and 4.8 per 100,000 for females). States and territories with male suicide rates higher than the national average

were: the Northern Territory (32.4 per 100,000), Tasmania (22.7 per 100,000), Western Australia (19.8 per 100,000), Queensland (19.4 per 100,000), and South Australia (18.2 per 100,000). States and territories with male suicide rates below the national average were: the Australian Capital Territory (15.5 per 100,000), Victoria (14.9 per 100,000), and New South Wales which had the lowest recorded male suicide mortality (13.2 per 100,000). In comparison, the highest female suicide rates were recorded in Tasmania (6.9 per 100,000), followed by the Northern Territory (6.2 per 100,000), and Western Australia (5.8 per 100,000). The lowest female suicide rates were found in Victoria (4.6 per 100,000) and New South Wales (4.0 per 100,000).

Figure 9. Age-standardised suicide rates by sex and state and territory, 2006-2010



Data source: Australian Bureau of Statistics, 2013

The highest difference between rates of male and female suicide was recorded in the Northern Territory (5.3/1). In all other states and territories,

gender rate ratios were similar to the average for total Australia (3.4/1).

Table 3. Male-to-female suicide rate ratio by state and territory, 2006-2010

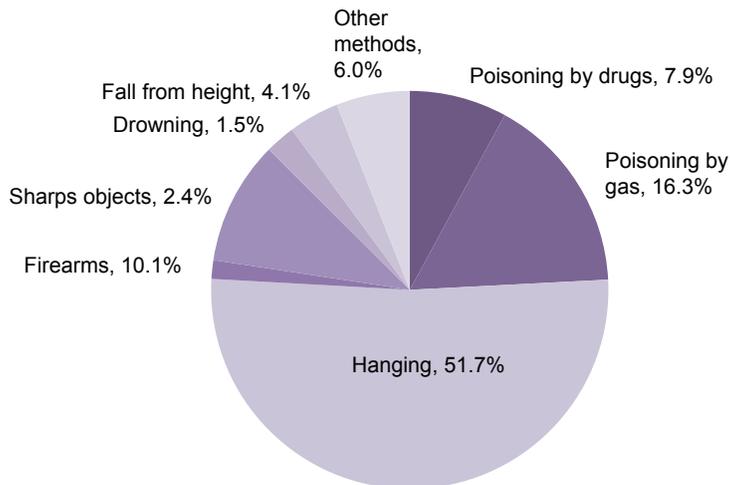
State	NT	QLD	SA	NSW	WA	VIC	TAS	ACT	Australia
Gender ratio	5.3	3.5	3.5	3.4	3.5	3.3	3.3	3.4	3.4

Data source: Australian Bureau of Statistics (2011)

Suicide methods used by males

Figure 10 presents the distribution of suicide methods used by males in Australia during the period 2001-2010. The most commonly used method was hanging, which accounted for 51.7% of all suicides. Poisoning by gas (predominantly motor vehicle exhaust gas) was used by 16.3% of suicides, 10.1% used firearms, and 7.9% poisoning by drugs. Additionally, 4.1% of male suicides occurred by fall from height, 2.4% by

cutting with sharp objects, and 1.5% by drowning. The category of 'other methods' comprised less-common methods, such as being hit by a moving vehicle, plastic bag asphyxiation, motor vehicle accident, electrocution, or other specified and unspecified methods, and accounted for 6.0% of all male suicides.

Figure 10. Distribution of suicide methods used by males, Australia, 2001-2010

Data source: Australian Bureau of Statistics 2013

In comparison to females, there were many noticeable differences in the distribution of male suicide methods. Hanging was the most common method used by both men and women; it was used in about 50% of male suicides and 40% of female suicides. The other suicide methods most frequently used by women included poisoning by drugs (27.1%) or gas (11.8%). Differences between males and females are illustrated in

Table 4. The greatest difference is observed in the use of firearms, which are more than 5-times more commonly used in male suicides compared to female suicides (10.1% vs. 2.1%). However, compared to females, males died less frequently from drug poisoning (8.0% vs. 27.1%), drowning (1.5% vs. 3.8%) or falling from height (4.1% vs. 5.8%).

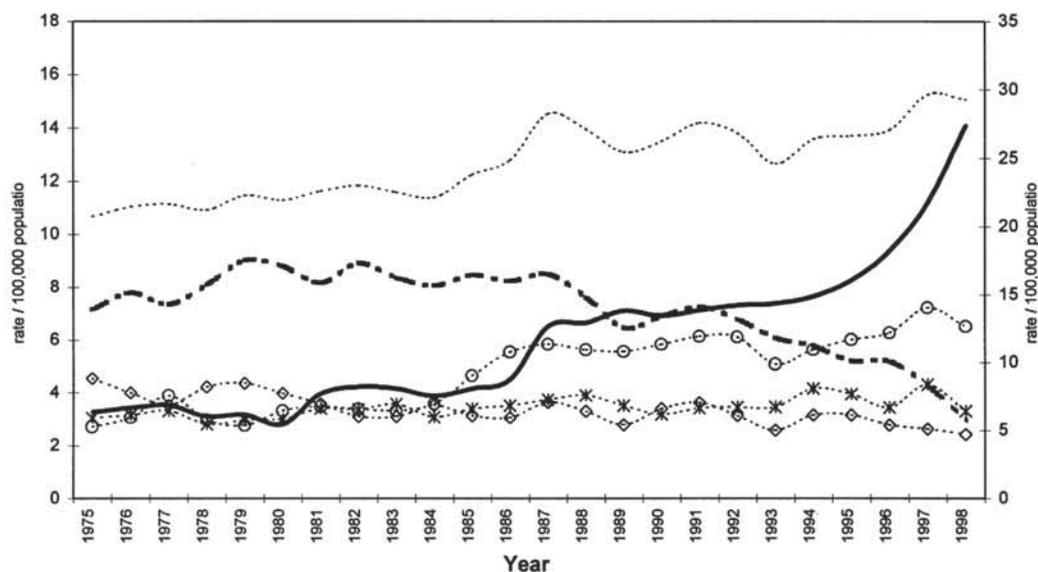
Table 4. Distribution of suicide methods used by sex, Australia, 2001-2010

	Males (%)	Females (%)
Suicide methods used more frequently by males:		
Hanging	51.6	40.8
Poisoning by gas	16.2	11.8
Firearms	10.1	2.1
Sharp objects	2.4	1.9
Suicide methods used more frequently by females:		
Poisoning by drugs	8.0	27.1
Drowning	1.5	3.8
Fall from height	4.1	5.8

Data source: Australian Bureau of Statistics 2013

In Australia, the distribution of the means of suicide used by males has changed significantly over the last few decades. While firearms were once the most common method of suicide used by Australian males, since the mid-1980s, the use of this method has been decreasing steadily; since the end of the 1990s, only about 10% of suicides are completed by this means (De Leo et al., 2003). On the other hand, the rate of suicide by hanging

has simultaneously increased and, in recent years, has accounted for about half of all male suicides. The changing patterns in the rates of the major suicide methods used by Australian males between 1975 and 1998 are shown in Figure 11. These changing rates reflect the worldwide trend where hanging has become the leading method of suicide in many developed countries (Gunnell et al., 2005a).

Figure 11. Age-standardised suicide rates in males by major methods, Australia, 1975-1998

Source: De Leo et al., 2003, p. 155

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Key messages

- Worldwide, suicide rates are higher in males; the only exception is China. In 2008 (the most recent year for which revised data are available for Australia), the male suicide rate was 17.1 and the female rate was 4.7 per 100,000 in Australia.
- Between 2001 and 2010, suicides accounted for 1.7% of all deaths in Australia.
- For the period 2001-2010, the highest male suicide rates have been in the age groups 25-34 and 35-44 years (25.1 and 26.2 per 100,000, respectively).
- States and territories with male suicide rates higher than the national average are the Northern Territory, Tasmania, Western Australia, South Australia, and Queensland.
- Around 50% of male suicides occurred by hanging, while 16.3% of cases used poisoning by gas (predominantly motor vehicle exhaust gas), 10.1% firearms, and 7.9% poisoning by drugs.

Non-fatal suicidal behaviours

Few countries in the world have established systems for collecting data on non-fatal suicidal behaviours. This makes it necessary to rely on context-specific suicide research from various international collaborative studies, such as the WHO/EURO Multicentre Study on Suicidal Behaviour (Schmidtke et al., 2004) and the WHO/Suicide Trends in At-Risk Territories (START) Study (De Leo and Milner, 2010). The data reported in these studies have been recorded using a standardised method from hospitals or other health-care facilities. Information on suicidal behaviours may also be obtained from surveys conducted in the general community, such as in the WHO/Multisite Intervention Study on Suicidal Behaviours (SUPRE-MISS) (Bertolote et al., 2005) and the WHO/Mental Health Survey (MHS) (Borges et al., 2010; Nock et al., 2009). This section will describe these past epidemiological surveys on non-fatal suicidal behaviours and provide information on community surveys conducted in Australia (Australian Bureau of Statistics, 2007; De Leo et al., 2005; Fairweather-Schmidt et al., 2012; Martin et al., 2010).

Global trends and patterns

The WHO/EURO Multicentre Study on Suicidal Behaviour was one of the first collaborative multinational studies to examine suicidal behaviours (Schmidtke et al., 2004). This study has inspired other cross-centre collaborative research projects such as the WHO/START Study, which was designed to initiate research in countries of the Western Pacific Region (De Leo and Milner, 2010).

Table 5 contains the most recent information available from 11 of the WHO/EURO sites and an Australian site (Gold Coast Hospital) from the WHO/START Study. Most of these data come from areas in Northern and Western Europe; records in Australia come from the Emergency Department (ED) of the Gold Coast Hospital in Queensland. This table also describes differences in the time period for which these data were collected. As can be seen, most information comes from the mid – to late-1990s, while more recent accounts are available in Italy and Australia. Differences in the time of data collection may constitute a methodological problem. However, this is balanced by the fact that the information has been collected in a similar way between study areas and is therefore comparable over time.

Table 5. Sample areas included in international data on non-fatal suicidal behaviours

Time	Centres	Country
2005-2010*	Gold Coast	Australia
1995-1999	Innsbruck	Austria
1995-1999	Gent	Belgium
1995-1999	Odense	Denmark
1995-1999	Helsinki	Finland
1995-1999	Wuerzburg	Germany
2002-2006**	Padua	Italy
1995-1999	Sør-Trøndelag	Norway
1995-1999	Stockholm	Sweden
1995-1999	Umea	Sweden
1995-1999	Berne	Switzerland
1995-1999	Oxford	United Kingdom

Data sources: Schmidtke et al., 2004 (the WHO/EURO Study)

* Gold Coast Hospital from the WHO/START Study

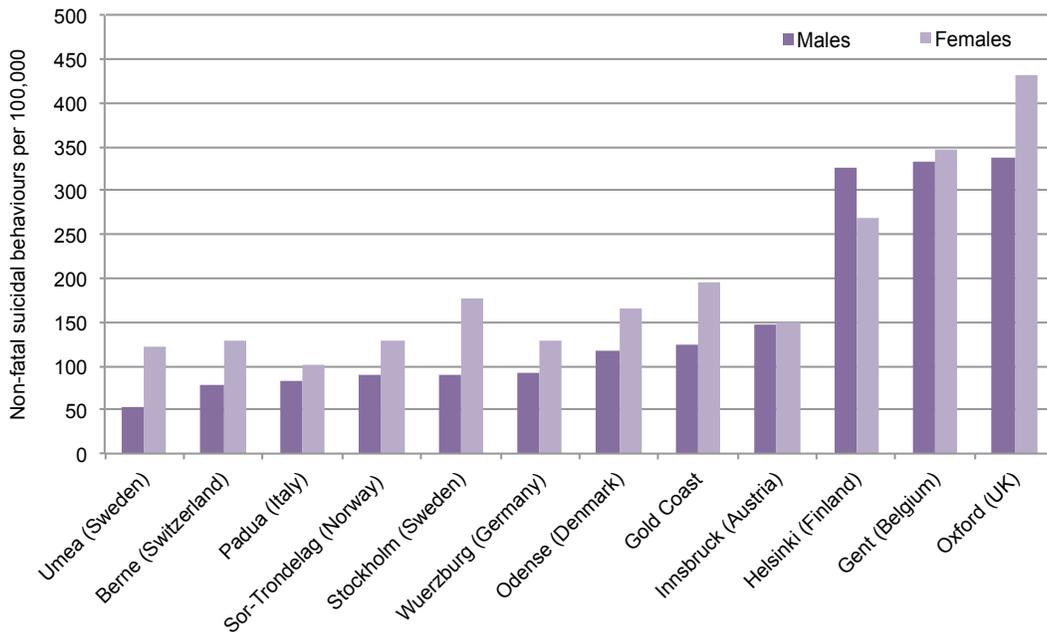
** Updated data on Italy provided in Kölves et al., 2011a

Figure 12 shows the age-standardised rates of non-fatal suicidal behaviours which have been calculated using data on persons presenting each year and exclude repeat presentations. Rates were calculated using the population for the time periods under study and age-standardised using the WHO world standard population (Ahmad et al., 2001).

The highest rates of non-fatal suicidal behaviours for males (337 per 100,000) and females (433

per 100,000) were in Oxford, while the lowest rates were in Umea for males (53 per 100,000) and Padua for females (102 per 100,000). Over the period 2005 to 2010, the rate of non-fatal suicidal behaviours at the Gold Coast was 156 per 100,000 for males and 247 per 100,000 for females. The Gold Coast has the fourth-highest rates for both males and females of the selected regions.

Figure 12. Age-standardised rates of non-fatal suicidal behaviours by sex



Data sources: Schmidtke et al., 2004 (the WHO/EURO Study)

* Gold Coast Hospital from the WHO/START Study

** Updated data on Italy provided in Kølves et al., 2011a

Non-fatal suicidal behaviours from the Gold Coast Hospital

Sex and age

The system for recording suicidal behaviours at the Gold Coast was developed as part of the WHO/START study (De Leo and Milner, 2010). A brief description of the methodology for obtaining these data is as follows: Records on suicidal behaviours are routinely collected from the Emergency Department. These data are then independently coded by two researchers. Methods of suicidal behaviours are classified according to the conventions of the International Classification of Disease Tenth Revision (ICD-10).

Table 6 shows the number of presentations made to, and the number of persons who accessed, the Emergency Department for non-fatal suicidal behaviours by sex. Columns (a) and (b) include persons who repeatedly attended the hospital and provide an indication of the total number

of presented cases seen in the Emergency Department, while columns (c) and (d) only count a person's first presentation for each year, ignoring an individual's subsequent presentations. Therefore, (a) and (b) represent presentations while (c) and (d) represent persons.

During the period January 2005 to December 2010, there were 3,598 presentations to the Emergency Department for suicidal behaviours by females and 2,219 presentations by males. The year 2008 had the most presentations by females and the year 2009 had the highest number of presentations by males. Just over 80% of the presentations by females and 85% of the presentations by males were single presentations; this means that these persons only made one presentation over the entire time period. Approximately 19% of the female cases and 15% of the male cases were additional presentations for suicidal behaviours. The corresponding number of persons presenting per year are presented in Table 6.

Table 6. Non-fatal suicidal behaviours by sex

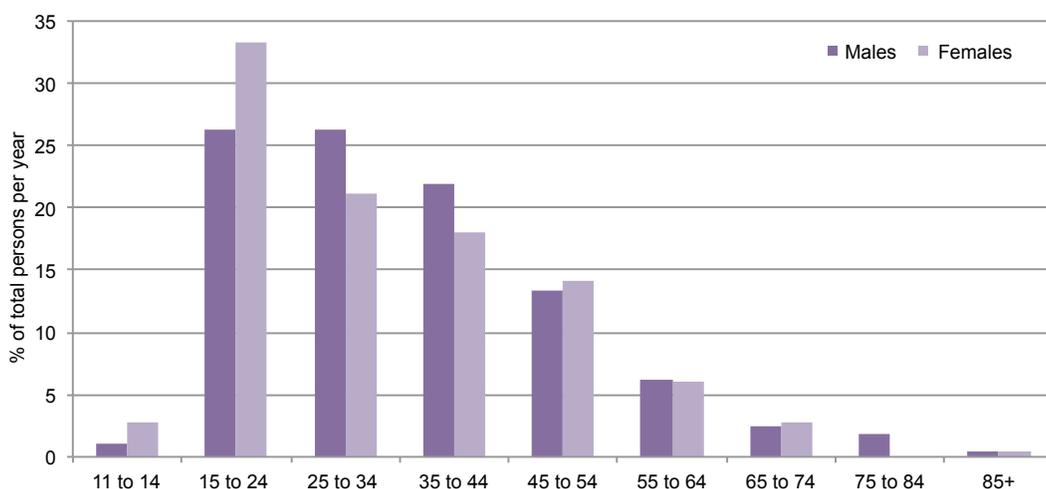
Year	Presentations by males (a)	Presentations by females (b)	Males per year (c)	Females per year (d)	Male (c) /Female (d) ratio
2005	331	507	273	426	0.64
2006	308	453	274	373	0.73
2007	334	541	289	442	0.65
2008	357	702	302	519	0.58
2009	410	623	352	502	0.70
2010	479	772	399	648	0.62
All years	2,219	3,598	1,889	2,910	0.65

Data source: Gold Coast Hospital from the WHO/START Study

Most people who presented with suicidal behaviours were between 15 and 24 years of age (Figure 13). Males were more likely to be aged

between 25 to 44 years, while females were more often younger than 24 years of age.

Figure 13. Persons presenting with non-fatal suicidal behaviours to the Emergency Department by age group and sex, 2005-2010



Data source: Gold Coast Hospital from the WHO/START Study

Rates of non-fatal suicidal behaviour

Rates were calculated for the years 2005 to 2010 in order to determine the overall burden of non-fatal suicidal behaviours in the Gold Coast Health District. The calculation of crude rates used population data gathered for the years 2005 to 2010 from the Australian Bureau of Statistics “Population by Age and Sex, Regions of Australia” (Catalogue No. 3235.0; Australian Bureau of Statistics, 2010). The rates of non-fatal suicidal

behaviours were then age-standardised using the WHO World Standard Population (Ahmad et al., 2001).

Table 7 shows the highest rate of non-fatal suicidal behaviours for females and males occurred in 2010 (154 per 100,000 for males and 262 for females). The lowest rate of non-fatal suicidal behaviours for both sexes occurred in 2006 (117 per 100,000 for males and 166 for females).

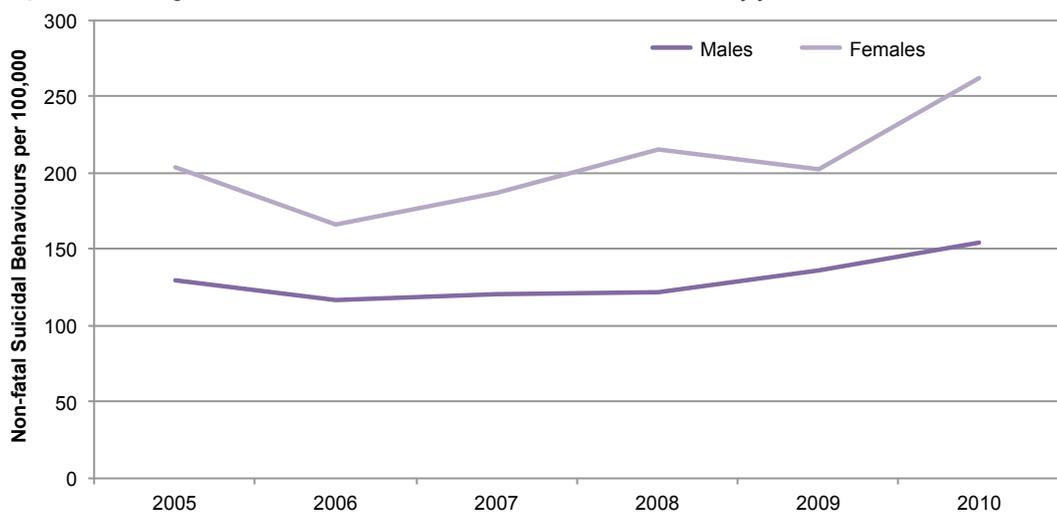
Table 7. Age-standardised rates of non-fatal suicidal behaviours by year and sex

Year	Males	Females	M/F ratio
2005	130	204	0.64
2006	117	166	0.70
2007	121	187	0.64
2008	122	215	0.57
2009	136	202	0.67
2010	154	262	0.59
All years	130	206	0.64

Data source: Gold Coast Hospital from the WHO/START Study

Figure 14 shows an increasing trend of male and female non-fatal suicidal behaviours over a five-year period. The significance of this trend was tested using Poisson regression. The results suggested a significant increase in female non-fatal suicidal behaviours (IRR 1.06, $p < 0.001$).

There was no significant trend found for male rates. These results demonstrate that non-fatal suicidal behaviours have been increasing in the Gold Coast Hospital Emergency Department, particularly for females.

Figure 14. Age-standardised rates of non-fatal suicidal behaviours, by year and sex

Data source: Gold Coast Hospital from the WHO/START Study

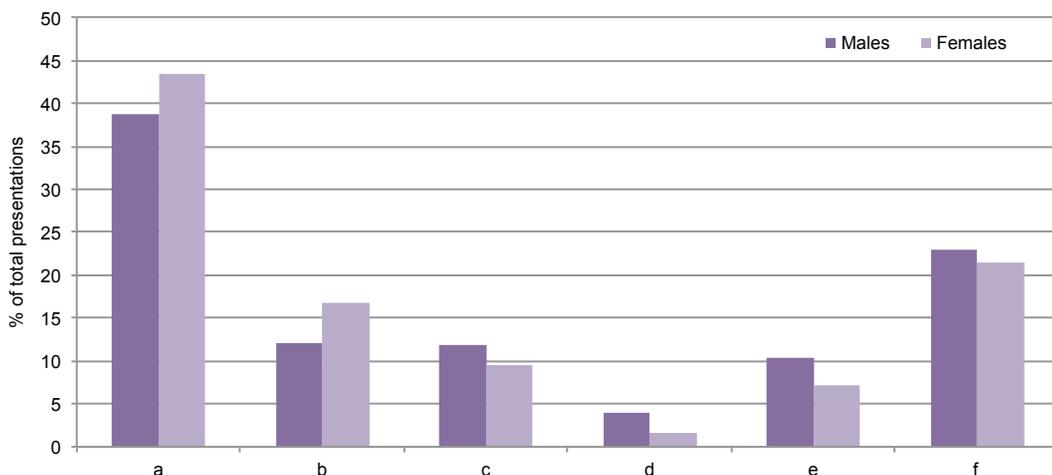
Methods used in non-fatal suicidal behaviours

Antiepileptic and psychotropic drugs (X61, classified 'a') and cutting and piercing (X78 and X79, classified as 'f') were the most common methods for both women and men (Figure 15). These methods accounted for over 60% of the presentations for non-fatal suicidal behaviours.

Aside from these predominant methods, the results of a Chi-square test showed significant

sex differences in method used ($\chi^2(5) = 83.44, p < 0.001$). As presented in Figure 15, females more often overdosed on analgesics and related drugs (classified as 'b') than males. Compared to females, males more often overdosed with other drugs and methods of poisoning ('c'), solvents and gases ('d'), and 'other' and unspecified methods ('e').

Figure 15. Presentations and methods of non-fatal suicidal behaviours by sex, July 2004 to August 2010



Code	Description of intentional self-harm (ICD-10 codes)
a	Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified (X61)
b	Nonopioid analgesics, antipyretics and antirheumatics (X60)
c	Other drugs, medicaments and biological substances (X62-X64)
d	Solvents, gases, vapours, chemicals (X66-X69)
e	'Other' and unspecified methods, also including hanging and suffocation, drowning, smoke, fire, steam, jumping from a high place, jumping or lying in front of a moving object, firearms (X70-X77 & X80-X84)
f	Cutting and piercing (X78-X79)

Data source: Gold Coast Hospital from the WHO/START Study

Results from the Gold Coast Hospital indicate that males presented for non-fatal suicidal behaviours less often than females (gender ratio of 0.64 males to 1 female). Although ICD-10 codes X61 and X78-X79 were the most common methods for all persons, males more often presented with “other drugs, medicaments and biological substances” (X62-X64) and “other methods” (X70-X77 & X80-X84). Males engaging in non-fatal suicidal behaviours tended to be middle-aged (25 to 44 years), compared to females who tended to be younger than 24 years of age at the time of presentation to the Emergency Department.

Community surveys

International evidence

There have been numerous community surveys of suicidal behaviours. However, it is often difficult to compare results due to differences in methodology across studies (Burlless and De Leo, 2001). To some extent, this problem can be addressed by developing cross-culturally adapted community surveys, as in the WHO/SUPRE-MISS study (Bertolote et al., 2005) and the WHO/ WMHS (Borges et al., 2010; Nock et al., 2009). As discussed below, the main benefit of both these studies is that they allow the prevalence of suicidal behaviours to be compared across a diverse range of study locations.

The SUPRE-MISS community survey in 10 countries found that the lifetime prevalence of suicide attempts ranged from 0.4% to 4.2% across sample areas in India, Sri Lanka, South Africa, South Africa, Vietnam, Iran, Estonia, Australia (Brisbane), China, and Sweden (Bertolote et al., 2005). Brisbane and Karaj (Iran) had the highest rate of lifetime suicide attempts (4.2 % in each), while Hanoi (Vietnam) and Chennai (India) had the lowest rates (0.4% and 1.6%, respectively). The variations in the prevalence of suicidal behaviours between sample locations is thought to reflect cultural differences in the willingness of persons to report suicidal behaviours, as well as logistical and methodological issues in conducting the surveys. Although this study notes gender differences between the sample locations, there is limited information provided about the prevalence of suicidal behaviours by sex.

The WHO/WMHS is a more recent cross-country study conducted in 21 low-, middle- and high-income countries (Borges et al., 2010). This

reports a lifetime prevalence of suicide attempt of only 0.6%, with a significantly larger proportion of these being attempts made by women (Nock et al., 2009). The 12-month prevalence of suicidal behaviours was found to be 0.3% for both males and females in developed countries, and 0.4% for males and 0.5% for females in developing countries (Borges et al., 2010). This study found that being female, younger in age, with lower education and income, unmarried, unemployed, with parental psychopathology, childhood adversities, the presence of mental disorder, and psychiatric co-morbidity were all significant risk factors for suicidal behaviours.

A community survey by Weissman et al (1999) found a relatively consistent lifetime prevalence of suicide attempts across sites (between 3% and 5%). The prevalence ranged from 0.72% and 0.75% in Beirut and Taiwan to 3.1% in the United States to 5.9% in Puerto Rico. There was a higher ratio of female to male suicide attempts in all areas. However, this ratio varied from 1.2 females/1 male in South Korea to 3 females/1 male in the United States. This study also found that females and divorced or separated persons were particularly at risk of non-fatal suicidal behaviours.

Australian community surveys

There have been several community surveys of suicidal behaviours in Australia (see Table 8). Some of these report 12-month prevalence of suicidal behaviours rather than lifetime prevalence. Differences in the use of lifetime versus 12-month prevalence were also apparent in the international community surveys discussed above.

There is substantial variation in the prevalence of suicidal behaviours reported between different

samples. For example, the 2007 National Survey of Mental Health and Wellbeing (Australian Bureau of Statistics, 2007) found that 0.41% of the surveyed population ($n = 16,015,300$) had attempted suicide in the 12 months prior to the survey (Slade et al., 2009). Approximately twice as many females reported a suicide attempt than males (42,700 vs. 22,600). The Australian Epidemiological Study of Self-Injury by Martin et al (2010) reported a more equal gender ratio of male ($n = 144$) to female cases ($n = 171$) of self-injury over a 12-month period (2.4% vs. 2.8%). Compared to females, there was a greater number of males who self-injured in the age-group 25 to 34 years. However, it is important to note that this survey was on self-injury rather than attempted suicide. The Australian Epidemiological Study of Self-Injury defined self-injury as the deliberate destruction or alteration of body tissue without suicide intent (Martin et al., 2010). The common motivations for such actions are emotion regulation and self-punishment. However, it should be noted that close to half of those persons who self-injured also experienced suicide ideation in the four weeks prior to the survey; over one-quarter of these persons also reported a lifetime suicide attempt.

The PATH Through Life Project is a large longitudinal community survey focused on health and well-being. The sample for this project ($n = 7485$) is based in Canberra, Australia. Results from the PATH study indicate that 0.8% of the sample population had attempted suicide (although, a methodological limitation is the small sample size). There was a larger number of female suicide attempters, compared to males (Fairweather-Schmidt and Anstey, 2012).

A community survey by De Leo et al (2005), conducted as part of the WHO/SUPRE-MISS

survey, also reported a notably higher number of female suicide attempters than male attempters. Compared to females, males often used more lethal suicide methods such as: hanging (8.9 vs. 3.3%, NS), carbon monoxide (8.2% vs. 1.2%,

$c^2(2) = 12.4, p < 0.05$), crashing of a motor vehicle (7.5% vs. 4.1%, $c^2(2) = 7.3, p < 0.05$), and firearms (6.2% vs. 0.4%, $c^2(2) = 16.9, p < 0.001$). There were no significant age differences in attempts.

Table 8. Australian community surveys on non-fatal suicidal behaviours

Author and name of the survey	Sample area and response rate(s)	Sample size	Prevalence of suicide attempts
The 2007 National Survey of Mental Health and Wellbeing (Australian Bureau of Statistics, 2007; Slade et al., 2009)	Australia; response rates for contacted households by State are: NT (55%), VIC (55%), NSW (59%), SA (60%), WA (63%), QLD (64%), ACT (71%), TAS (77%)	16,015,300 persons (aged 16 to 85 years)	0.41% had attempted suicide (22,600 males and 42,700 females) in the past twelve months
The Australian Epidemiological Study of Self-Injury (Martin et al., 2010)	Australia; response rate for contacted households was 38.5%	12,006 persons (aged 10 to 100 years)	2.6% had self-injured (144 males and 171 females) in the past twelve months
The Personality and Total Health Through Life Project (PATH) (Fairweather-Schmidt and Anstey, 2012)	Canberra and Queanbeyan; response rates for three age cohort were: 20 to 24 years - 58.6%, 40 to 44 years - 64.6%, and 60 to 64 years - 58.3%	7,485 (three age cohorts: 20 to 24 age, 40 to 44 years, and 60 to 64 years)	0.80% had attempted suicide (n=60) in the past twelve months (24 males and 36 females)
The WHO/SUPRE-MISS (De Leo et al., 2005)	Brisbane and Gold Coast; response rate for contacted households was 68%	11,572 (over 18 years)	0.41% had attempted suicide in the past twelve months, 4.2% attempted in lifetime (180 males and 305 females)

The results of community surveys conducted in Australia and overseas suggest that females engage in non-fatal suicidal behaviours more often than males. However, there appear to be important differences in the prevalence of male and female non-fatal suicidal behaviours between different studies. This may suggest an effect of cultural influences on non-fatal suicidal behaviours, but could also be due to variations in methodology.

Methodological problems

Data source and study design involve decisions that can give rise to differences in the prevalence of non-fatal suicidal behaviours. For example, the hospital data on non-fatal suicidal behaviours (in the WHO/EURO and WHO/START Studies) were automatically collected as part of routine surveillance, which is a “passive” method of obtaining information on suicide. In contrast, community surveys represent an “active” method of data gathering, as researchers aim to collect data that would not normally be available. There are strengths and weaknesses associated with both these sources of information. For example, records from hospitals are less likely to be subject to recall bias, as these are collected in ‘real time’, while community surveys provide retrospective accounts of suicidal behaviours. Community surveys are also affected by a range of methodological factors such as differences in the construction of questions about suicide, samples and location of the study, and methods of data collection (Burless and De Leo, 2001; Fairweather-Schmidt et al., 2012). Further, data in community surveys may be under-reported due to feelings of shame or stigma (subject bias) (Bertolote et al., 2005).

There are also problems in the representativeness of hospital data as these cannot capture information on persons who avoid seeking help following a suicide attempt. Further, reporting systems in hospitals are likely to miss a number of cases because of design flaws or human error. In comparison, information obtained from community surveys can capture information on both those who have sought, and not sought, treatment for suicidal behaviours and is therefore more likely to reflect non-fatal suicidal behaviours in the general population.

Key messages

- A greater number of females engage in non-fatal suicidal behaviours than males.
- Compared to the international studies, rates of non-fatal suicidal behaviours on the Gold Coast, Australia, are relatively high (130 per 100,000 for males and 206 per 100,000 for females in 2005-2010).
- Males engaging in non-fatal suicidal behaviours tended to be older (between the ages 25 and 54 years) than females.
- Although drugs (ICD-10 X61) and cutting (X78-X79) were the most common methods of non-fatal suicidal behaviours for both genders, males were more likely to use more lethal methods than females.

Chapter 2

Determinants of suicidal behaviours in men

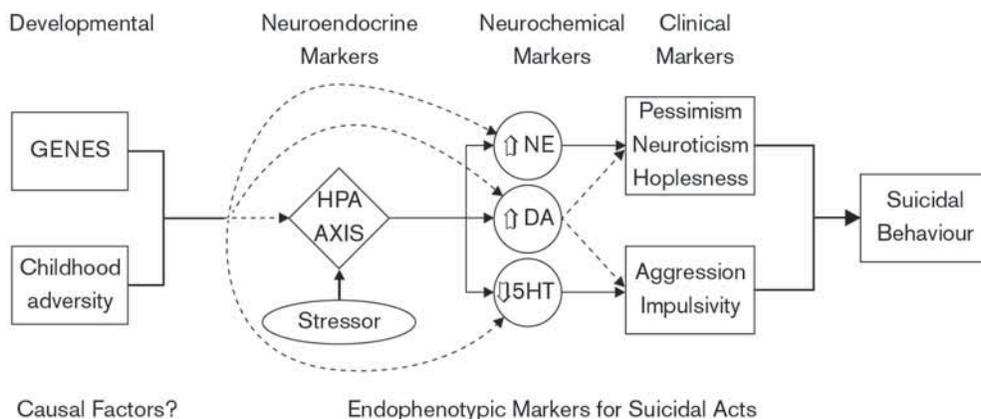
Kairi Kõlves, Lay San Too, Eeva-Katri Kumpula and Diego De Leo

Biological factors

Previously, the two sexes were thought to differ only in their endocrine systems and the anatomical differences these control; however, recent research has shown that women and men are different in many fundamental ways (Gillies and McArthur, 2010). The female X and male Y chromosomes exert different effects, leading to somewhat different brain structure and function in the two sexes. Indeed, it is a testosterone surge in the uterus experienced during pregnancy that starts the development of the foetal brain along male lines instead of female. As understanding of the biological aspects of behaviour and mood develops, questions about differences between the sexes become more sophisticated. These include: why are women more likely to suffer depression than men, and why are men more likely to complete suicide than women? Some recent research findings and possible implications regarding the biological aspects of suicide will be discussed.

Previous research has suggested that the complex interaction of individual genetics, environmental factors like stress, and subsequent changes in messenger molecule systems may be responsible for the development of depression (aan het Rot et al., 2009). When trying to understand the biological processes leading to depression and suicide, no single gene, hormone, or other factor should be examined individually; instead a broader scope including co-regulated gene groups in brain areas needs to be taken (Gaiteri et al., 2010). It has been argued that chronic shifts in the coordinated expression of many genes, as well as other factors, may lead to an altered, pathological homeostatic state, such as a mental disorder. Symptoms such as depression, impulsivity, and aggression can all affect suicidality (Gross-Isseroff et al., 1998; Carballo, et al., 2008; see Figure 16). More specific examples of such pathological states – hyperactivity of the hypothalamus-pituitary-adrenal (HPA) axis, activation of noradrenergic signalling, and decreased serotonin signalling – may impact upon a person's vulnerability to suicidal behaviour (Van Heeringen, 2003).

Figure 16. The HPA axis and its connection to suicidality
(A hyperactive HPA axis reacts too strongly to stress, increasing the risk of suicidality)



NE = noradrenaline, DA = dopamine, 5HT = serotonin

Source: Carballo et al., 2008, p. 94

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Serotonin and dopamine

Serotonin (5-hydroxy tryptamine, 5-HT) is one of the most important neuronal messenger substances (neurotransmitters) for mood regulation and depression in the human brain (Ngun et al., 2011). Although people who are depressed may often have abnormally low levels of serotonin (Jans et al., 2007), this does not explain all cases of depression (aan het Rot et al., 2009). Some evidence suggests that men may have 50% higher serotonin synthesis rates than women (Nishizawa et al., 1997), although this may be an artefact caused by a methodological error in the study (Young et al., 1999). If this finding is accurate, a higher serotonin synthesis rate may partly indicate why men have lower depression rates compared to women; they would

potentially be more protected from the effects of fluctuating serotonin levels as transient changes could be corrected more rapidly. In addition, low serotonin has also been associated with impulsive aggression (Seo et al., 2008) Some studies, however, have linked serotonin levels to the impulsivity of suicide attempts, rather than to the violence of the actual method used (Cremniter et al., 1999; Booij et al., 2006). The relationship between the potential impacts of low serotonin, or the increased impulsivity it can cause, and suicidality is currently uncertain (Deisenhammer et al., 2004).

Similar to serotonin, dopamine acts as a signalling molecule in the brain. The impacts of dopamine

and serotonin signalling appear to be intertwined as high dopamine levels can also cause increased aggression and impulsive behaviour (Ryding et al., 2008; Seo et al., 2008). Serotonin signalling appears to control and modulate dopamine actions. When serotonin activity is lowered, dopamine hyperactivity may follow, which can lead to increased vulnerability to impulsive aggressive behaviour in addition to and in a similar way to low serotonin (Seo et al., 2008). Men tend to be more sensitive to the negative effects of altered dopamine levels, which may be because the beneficial effects of oestrogens on dopamine signalling are more prominent in women (Sánchez et al., 2010).

Testosterone

Traditionally, testosterone has been linked to aggression which has been used by some researchers to explain violence in suicides (Lester, 1993). However, a Swedish study of 43 depressed suicidal male patients found no association between testosterone levels, measured in cerebrospinal fluid (CSF), and aggressive traits or suicide (Gustavsson et al., 2003). Similarly, another study found no association between testosterone and suicide but did make a connection between higher testosterone and more lethal suicide attempts (Perez-Rodriguez et al., 2011). In contrast, some studies have implied that there could be a connection between low testosterone and suicide. In one study, testosterone levels, measured in serum, were found to be lower in male suicide attempters (Markianos et al., 2009). Low testosterone was also found in a group of male schizophrenic suicide attempters — men who used more lethal suicide methods had lower testosterone levels (Tripodianakis et al., 2007). While testosterone may have a protective effect

in the brain when at normal physiological levels, evidence suggests that testosterone is actually converted into oestrogen which can exert the actual protective effects (Gillies and McArthur, 2010).

Oestrogens

Oestrogen hormones are also present in men and usually have anxiolytic effects in physiological concentrations (Solomon and Herman, 2009). Until old age, testosterone is continuously converted to oestrogens by the enzyme aromatase which means that oestrogen levels remain fairly steady in men compared to women, whose levels fluctuate with menses and then drop after menopause (Seeman, 1997). Oestrogens modify the serotonin system (Antonijevic, 2006). However, in males the day-to-day fluctuation is smaller compared to females, which may potentially protect men from depression and suicidality (Saunders and Hawton, 2006).

The HPA axis, discussed previously, regulates stress responses by affecting the levels of serotonin, dopamine, and noradrenaline (another signalling molecule) functions (Carballo et al., 2008; Figure 16). Prior to andropause, men seem to have a more active HPA axis and a more distinct HPA response to stress than women, which may be due to the balancing effects of oestrogen. It has been argued that HPA hyperactivity and abnormally strong stress reactions may be associated with suicidal behaviours (Figueira and Ouakinin, 2010). The noradrenaline and dopamine systems appear to be hyperactive in suicidal individuals whose stress reactions are classified as abnormal (Figueira and Ouakinin, 2010). This may lead to impulsivity and aggression, which could increase the risk of suicide. If men have a more active HPA axis than women then they may be more vulnerable to this risk.

Seasonal biological effects on suicides

Some studies have found that the light-dark, or seasonal, cycles influence hormones which, in turn, may impact upon vulnerability to suicidal behaviours. An Italian study found seasonal peaks in male suicide attempts and deaths (Preti, 1997). In people aged 65 years and older, no difference could be seen between the sexes. However, suicides among younger men had a clear peak in late spring; suicides among younger women had two peaks, one in late spring and one in late autumn (Preti and Miotto, 1998). Two Hungarian studies found that seasonal suicidality was more evident among men than women and more pronounced among those who used violent methods (Döme et al., 2010; Sebestyen et al., 2010). Similar findings were made in a Slovenian study (Oravec et al., 2007). The reasons for these seasonality effects are not fully understood but may be linked to employment (Döme et al., 2010). Over the past decade, the previously-observed seasonal suicide peak from spring to summer has begun to diminish in many Western countries. However, in countries such as Australia and the United States, the rate of suicides during specific seasons seems to have increased (Ajdacic-Gross et al., 2010). In Australia, a peak in suicides may be observed in late-Spring (November; see Rock et al., 2003). However, it must be noted that seasonality cannot be used as a predictor of suicidality on its own as its effect is rather small on overall suicide rates (Salib and Cortina-Borja, 2010).

Key messages

- The serotonin system in males may be more resistant to fluctuations than in female, which possibly offers some protection from mood disorders such as depression.
- Dopamine signalling disturbances may increase impulsivity and aggression. Men may be more vulnerable to this which, in turn, may increase their suicide risk.
- Low testosterone may be connected to suicidality. However, high testosterone, in association with aggression, has also been implicated.
- Testosterone is converted into oestrogen in the male brain at a steady rate compared to oestrogen fluctuations in women. Oestrogen has a positive effect on mood. However, since men have lower levels of oestrogen, which attenuates stress responses, they may be at an increased risk of aggression and impulsivity.
- The effects of seasons on suicidality are not fully understood and could also be linked to other factors such as seasonal (un)employment changes and workloads.

Psychological factors

Psychological mechanisms, such as personality and cognitive variables, have been found to be associated with suicidality. Some of these may trigger suicidal crises; others may moderate suicidal crises. Nevertheless, to date, a limited number of empirical studies have been conducted examining the relationship between psychological factors and suicide in males. Although a number of psychological theories have been formulated in order to explain suicidal behaviours, only the most relevant psychological theories about suicide will be presented here.

From the psychoanalytical perspective, Freud's theory of suicide is the most influential. Freud (1917) proposed that the dynamics of suicide are determined by the vicissitudes of the aggressive impulse. Vulnerable individuals tend to perceive loss narcissistically and show ambivalence between love and hate towards the object. Through wishing to kill the introjected object, aggression turns inwards and a person kills themselves (Strachey, 1955a). Freud later argued that suicide is motivated by thanatos, the death force, which overpowers, libido, the life force (Strachey, 1955b). Although psychoanalytic thinking may be influential in clinical practice, it has little empirical support (Chopin et al., 2004).

Beck and colleagues (1990) stressed that cognitive aspects of psychological functioning are central to understanding suicidal behaviours. The existence of hopelessness, which was defined as negative expectations about self, others and the future, was particularly stressed. A number of empirical studies have supported the role of hopelessness in suicide, as discussed below.

Shneidman's theory of suicide is potentially one of the most comprehensive in psychology (Chopin et al., 2004). He hypothesised that suicide is caused by unbearable psychological pain — 'psychache' (Shneidman, 1993). This is the result of unmet and frustrated psychological needs, which include thwarted love, fractured control, assaulted self-image, ruptured relationships and excessive anger. Shneidman indicated that identifying, and reducing, 'psychache' are key in preventing suicide.

A more recent theory by Joiner (2005) proposed that psychological factors may converge with interpersonal ones in suicide, which include both the desire and the capability to die. The former is a function of perceived burdensomeness (i.e., an inability to engage in meaningful and reciprocal relationships) and thwarted belongingness (i.e., an unmet need to belong). The latter is a function of fearlessness towards pain, injury, and death. Joiner suggested that a person's capability to suicide is acquired through repeated exposure to painful and provocative events, such as self-injury, physical fights, and high-risk behaviours. In general, males and older adults tend to have experiences that prepare them to tackle barriers of self-preservation in ways females and younger people do not. The theory also has some empirical support. Bender et al. (2011) showed that impulsivity (especially sensation seeking) had an indirect relationship with an acquired capability for suicidal behaviour; this relationship was mediated by painful and provocative events. This finding also was in line with Joiner's (2005) hypothesis that impulsive people were more likely to be exposed to painful and provocative experiences than less impulsive people. Over time, these people become used to the pain from such events, and they consequently

acquire the capability to suicide should they ever desire to die.

Personality factors

Personality traits have been shown to relate to variables that contribute to suicide, such as individuals' perceptions of, and adaptation to, the environment (Harkness and Lilienfeld, 1997), especially during critical and stressful situations. A systematic review of studies published between 1977 and 2004 indicates that personality traits such as hopelessness, neuroticism and, to a lesser extent, extraversion can be important predictors of suicidal ideation, attempts, and deaths (Brezo et al., 2006b). Other studies have suggested that traits, such as impulsivity, irritability, aggression, anxiety, suspiciousness, non-conformity, self-criticism, perfectionism, introversion, openness to experience, narcissism, conduct problems, and identity problems, may leave people vulnerable to suicide (Brent et al., 1994; Nordstrom et al., 1995; Dean et al., 1996; Engstrom et al., 1999; Conner et al., 2001; Beautrais, 2003; Beevers and Miller, 2004; Enns et al., 2003; Minarik et al., 1997; Donaldson et al., 2000; Brezo et al., 2006a; Duberstein et al., 2000; Ronningstam and Maltzberger, 1998; Fazaal and Page, 2009; Ohring et al., 1996). In contrast, agreeableness, stability of self-esteem, and resilience have a protective effect on suicide (McCann, 2010; Fazaal and Page, 2009; de Man and Gutierrez, 2004; Nrugham et al., 2010) and may be gender specific (Street and Kromrey, 1994).

There is some evidence that personality traits may differ between males and females. For example, one study indicated that men may be more assertive and open to ideas while women may be more neurotic, agreeable, warm and open to

feelings (Costa et al., 2001). It has been argued that these differences in personality traits could contribute to the gender dissimilarities observed in certain suicidal behaviours (McCrae et al., 1999; Widiger and Anderson, 2003). This may help to explain the phenomenon of high male completed suicide rates.

An Australian case-control psychological autopsy study (35+ years) (De Leo, Draper and Snowdon, unpublished), analysed personality using the NEO Five Factor Inventory (NEO-FFI; Costa and McCrae, 2003). Analyses showed that there were no statistically significant differences between men and women. Compared to the sudden death controls, Australian male suicides appeared to have significantly higher scores on neuroticism and lower scores on extraversion and agreeableness. This is in line with findings from previous studies. Similar results were also shown in female suicide deaths when compared to their control groups. However, in line with previous results, female suicides tended to have slightly higher scores in neuroticism and agreeableness.

The same study also analysed aggression using the Overt Aggression Scale (Yudofsky et al., 1986). Results demonstrated significantly higher levels of aggression in suicides compared to the controls, especially among males. Further, male suicides tended to show significantly higher levels of overt aggression in the month prior to their death (De Leo et al., unpublished).

Impulsivity, irritability, aggressiveness

Research has shown that individuals who are impulsive, irritable, or aggressive may be more likely to manifest their anger and hostility in violent behaviours. Coupled with the intent to die,

these violent behaviours could be turned inwards in the form of highly lethal suicidal actions. One study, which supports this idea, indicated that impulsivity was positively associated with the use of violent suicide methods (Dumais et al., 2005b). The use of violent methods can place impulsive individuals at high risk of completed suicide. A study which examined the relationships between impulsivity and irritability with suicidal ideation in young American men, aged 15-20 years, revealed that both these traits appeared to be more frequently found in men who reported serious suicidal ideation (Conner et al., 2004). Further, impulsivity has been found in conjunction with personality traits such as aggression (Turecki, 2005). In previous studies, this impulsive-aggressive trait has been found more commonly in suicidal individuals, especially younger individuals (Turecki, 2005; McGirr et al., 2008). A cohort study revealed that spontaneous aggression, reactive aggression (such as striving for dominance), and excitability were found more frequently in male suicide cases, compared to their controls (Angst and Clayton, 1998).

Further, some studies have found that higher levels of impulsivity and aggression can elevate the risk of suicide in males with mental disorders. As reported by Dumais and colleagues (2005a), Canadian male suicides with major depression were more impulsive and aggressive, compared to non-suicidal living controls hospitalised with the same diagnosis. These personality risk factors were more specific to younger suicides who died aged 18-40 years. This study also found positive relationships between impulsivity, aggression, Cluster B personality disorder (which incorporates histrionic, narcissistic, borderline and antisocial traits), and alcohol and drug abuse/dependence.

These findings indicate that impulsive and aggressive behaviours are not direct predictors of suicide. Dumais and colleagues speculated that:

a developmental cascade may start with a biological predisposition to higher levels of impulsive and aggressive behaviours. Having a higher level of impulsive and aggressive behaviour may, in turn, increase the risk of developing a cluster B personality disorder that *per se* could lead to an increased risk of substance abuse/dependence. (2005a, p. 2121)

This is supported by a finding that Borderline Personality Disorder by itself was not a risk factor for suicide (Cheng et al., 1997). However, the Dumais et al. study (2005a) also demonstrated that, when in combination with severe depression, the suicide risk for people with Borderline Personality Disorder was increased approximately 450 times.

Other personality factors

In New Zealand, McGee and colleagues (2001) investigated the longitudinal relationships between men's self-esteem and experiences with self-harm during childhood and any subsequent experiences of suicidal ideation when they were aged 18 to 21 years. This study indicated that a boy's low self-esteem was a strong predictor for early thoughts of self-harm and later suicidal ideation. Similarly, when compared to those who died of somatic causes, another study found that males who died by suicide tended towards characteristics of self-blame and social introversion in their early adult years (Yen and Siegler, 2003). In contrast, in one study, conscientiousness negatively predicted suicide ideation in males (Velting, 1999). This could imply that enhancing conscientiousness

may help in reducing male suicidality at an early stage. However, in an Australian psychological autopsy study, there were no differences in conscientiousness levels between suicides and sudden death controls (De Leo et al., unpublished).

A study of college students examined the relationships between suicide ideation and personality types using the Myers-Briggs Type Indicator (MBTI). This study found that males tended to report more suicidal behaviours if their personality type was introversion-sensing-feeling, extroversion-intuitive-judging, or introversion-intuitive-perceiving (Street and Kromrey, 1994). Specifically, a person with an introversion-sensing-feeling personality is considered to focus on their inner world (introversion), pay more attention to information that comes through their five senses (sensing), and look at people and special circumstances first when making decisions (feeling).

Further, friable self-representation – such as identity confusion, incongruent self representations, and increased self-focus – has been identified as a potential risk factor for suicide in several studies. In one study, identity confusion was reported by suicide attempters at the time of their admission to hospital (Dingman and McGlashan, 1986). In another study, it appeared to predict suicidal behaviours in persons with Borderline Personality Disorder (Yen et al., 2004). In a study comparing the self-representations of suicidal and non-suicidal inpatients (Orbach et al., 1998), suicidal adolescents were observed to have a higher discrepancy between ideal self (i.e., the representation of who they want to be) and ought self (i.e., the representation of who they think they should be) than non-suicidal adolescents. Similarly,

one study concluded that suicidal individuals were also more likely to be preoccupied with self and detached from others (Stirman and Pennebaker, 2001). However, the potential risk factors attached to self-representation have not been examined specifically within the context of male suicidal behaviours.

Cognitive factors

Hopelessness

Beck and colleagues (1990) speculated that hopelessness could be the central factor to understanding suicidal behaviours. Beck defined hopelessness as negative beliefs about self, others and the future. Indeed, a number of studies support the role of hopelessness as a contributing factor to suicidal ideation (Dean et al., 1996; Beevers and Miller, 2004; Nock and Kazdin, 2002; Beck et al., 1989), suicide attempts (Nordstrom et al., 1995; Malone et al., 2000; Beautrais et al., 1999), and suicide deaths (Beck et al., 1985; Beck et al., 1989; Beck et al., 1990). As indicated by McGee and colleagues (2001), hopelessness may be strongly related to early thoughts of self-harm and later suicidal ideation in boys. Studies have shown perceived hopelessness to be a predictor of suicide as it may mediate the relationship between problem-solving appraisal and suicidal ideation (Dixon et al., 1994), suppress the ability to anticipate future positive events (MacLeod et al., 1993), and affect judgement so that negative events are perceived to be more likely to occur (MacLeod and Tarbuck, 1994).

Dichotomous thinking and cognitive rigidity

A previous study indicated that suicide attempters tended to have substantially more dichotomous thinking (i.e., a tendency to think in an extreme, all-

or-nothing manner) when compared to a control group (Neuringer, 1961). Later Neuringer (1976) held that suicidal persons were more likely to demonstrate both dichotomous and rigid styles of thinking than non-suicidal persons, independent of psychiatric status. A further study by Levenson and Neuringer (1971) study found that suicidal individuals were less able to change their problem-solving strategies. From these studies, it can be argued that people may become vulnerable to suicidal behaviours if they lack the capacity to moderate a dichotomous and rigid way of thinking and are unable to perceive opportunities for relief or change.

Attentional bias and over-general autobiographical memory

Studies which have examined how suicidal individuals process information have reported two primary domains of bias: attention and memory. A recent study that examined 124 adults admitted to a psychiatric emergency department in the United States demonstrated suicide attempters had attentional bias toward suicide-related words relative to neutral words; this bias was particularly strong among those whose attempt was more recent (Cha et al., 2010). More importantly, at the six-month follow-up, this suicide-specific attentional bias was more useful in predicting whether a person had attempted suicide during that time than the other clinical predictors utilised. This finding can be used to further improve scientific and clinical work on suicide-related outcomes.

Similarly, impaired memory processes, such as an over-general autobiographical memory, may also be indicated in people who are at risk for suicidal behaviours (Williams and Broadbent, 1986). More specifically, this memory style may contribute to

an escalated risk for a suicidal crisis by limiting access to other cognitive components that facilitate both hope and problem-solving in varied forms (Williams and Broadbent, 1986). Other studies have supported the finding that an over-general autobiographical memory has a negative effect on the effectiveness of problem-solving (Sidley et al., 1997; Pollock and Williams, 2001).

The empirical evidence indicating links between suicidal behaviours and cognitive variables, such as dichotomous and rigid thinking, biased attention and an over-general memory, is promising. However, no studies have examined these variables specifically in relation to male suicide. Importantly, as previous research has demonstrated that males have difficulties in verbally expressing their emotions (Grossman and Wood, 1993), these objective methods of assessment may be particularly appropriate for the clinical evaluation of suicidality in men.

Other cognitive factors

Beevers and Miller (2004) found that cognitive bias (where information was processed in an unrealistically negative manner) was correlated with greater hopelessness in depressed patients six months after their discharge from hospital. In turn, this appeared to lead to higher suicidal ideation. Further, as demonstrated in a prospective study conducted over two-and-a-half years (Abramson et al., 1998), individuals with high cognitive vulnerability to depression and hopelessness were more likely to exhibit suicidality compared to individuals with low cognitive. This relationship was mediated by hopelessness.

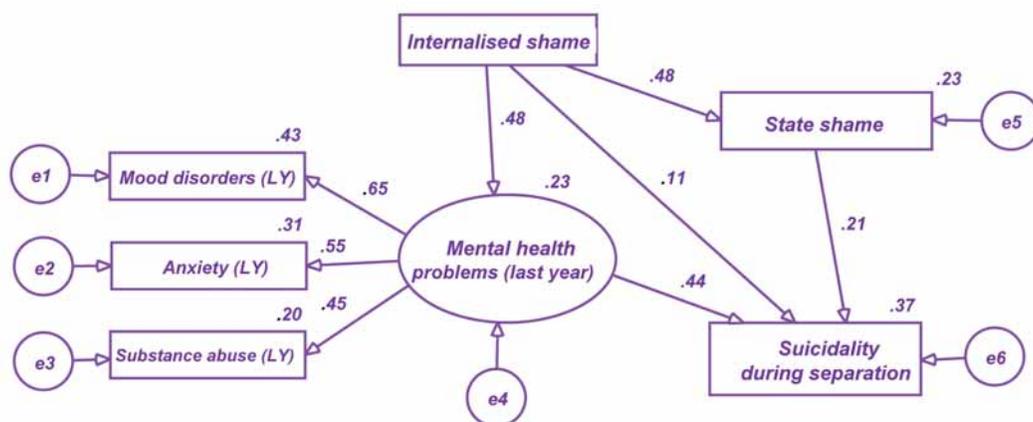
Other psychological factors

Shame and guilt

Shame and guilt are topics frequently studied in combination. Lewis (1992) indicated that shame encompasses the whole self; shame generates a desire to hide, disappear, or die once a person concludes they have done wrong, are inadequate, or are unworthy. In contrast, guilt focuses on the person's own behaviour and implies an inadequacy to meet a certain standard. Wellek (1993) claimed that shame seeks secrecy while guilt is remedied by confession and penance. Due to its characteristics, Lester (1997) indicated that uncovering the role of shame in suicidality is more difficult than uncovering the role of guilt. Lester (1998) studied the association between suicidal tendencies (i.e., whether a person had ever considered, threatened, or attempted suicide) and shame using undergraduate students in the United States. Lester demonstrated that shame was associated with suicidality in men but not women; however, there was no relationship between guilt and suicidality in either men or women (Lester, 1998). In this way, shame appeared to be more predictive than guilt in male suicidal behaviour.

A recent Australian study which analysed the suicidal behaviours of men who had experienced marital/*de facto* breakdown showed that trait shame (pervasive and internalised feelings more akin to a personality characteristic) and state shame (feelings related to a specific event, here related to separation) significantly predicted suicidality in separated men (Kölves et al., 2011b; Kölves et al., 2010). Deeper analyses indicated that, among separated men, the relationship between suicidality and trait shame was mediated by state shame or/and mental health problems; in contrast, suicidality was directly associated with state shame (see Figure 17; Kölves et al., 2011b). In this study, it appeared that separated men were more likely to experience state shame during the separation which could trigger suicidal behaviours.

Figure 17. Structural Equation Model of suicidality during separation among males



The values of R^2 are presented next to each predicted variable

e1-6 error terms

Model-Fit indices:

$\chi^2=6.90$, $df=7$, $p=0.440$; $\chi^2/df=0.99$

RMSEA (Root-Mean Square Error of Approximation)=0.000 (0.000-0.081)

CFI (Comparative Fit Index)=1.000

A RMSEA value close to zero ($RMSEA < 0.05$) and a CFI value close to 1 ($CFI > 0.90$) indicate a good fitting model.

All indices suggest that the present model reasonably fits the data

Figure presents significant path coefficients ($p < 0.05$), except path from Internalised shame to Suicidality during separation.

Source: K6lves et al., 2011b, p. 154

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Key messages

- Compared to sudden death controls, Australian male suicides have a significantly higher level of neuroticism and lower levels of extraversion and agreeableness.
- Aggression levels are significantly higher in suicides compared to controls, especially among males. Furthermore, male suicides show significantly higher levels of overt aggression in the month prior to their death.
- Low self-esteem is a predictor for early thoughts of self-harm and later suicidal ideation.
- State shame is one of the key determinants of male suicidal behaviours during marital/*de facto* separation.

Psychiatric factors

Previous research has argued that the presence of one or more mental disorders can increase the risk of suicide. Studies have indicated that approximately 90% of people who died by suicide had a diagnosable mental disorder at the time of death (Arsenault-Lapierre et al., 2004; Cavanagh et al., 2003; Bertolote and Fleischmann, 2002b; Bertolote et al., 2004). However, it must be noted that not all people with a mental illness eventually die by suicide, nor do all people who die by suicide necessarily have a mental illness. More recent research has questioned whether the role of mental illness as a risk factor might be overstated (Judd et al., 2012). Indeed, its influence is found to differ significantly across world regions (Arsenault-Lapierre et al., 2004).

Mental disorders in male suicides

According to the findings from the most recent Australian Survey on Mental Health and Wellbeing 2007 (Slade et al., 2009a), during the 12-months prior to the study, Australian men were less likely to report a mental illness than Australian women (17.6% vs. 22.3%). However, as shown in a meta-analysis of 27 studies, no significant differences were found between male and female suicides as to whether the individual had a psychiatric disorder at the time of death (Arsenault-Lapierre et al., 2004). Compared to male suicides, female suicides were more likely to have been diagnosed with depressive disorders or mood disorders; compared to female suicides, substance-related problems, personality disorders and childhood disorders were significantly more common in male suicides (Arsenault-Lapierre et al., 2004). Another study found that major depression, alcohol/drug dependence and Borderline Personality Disorder

were significantly more common in male suicides, compared to their community controls (Kim et al., 2003). A systematic study on the relationship between mental disorders and completed suicide in young people indicated that mood disorders were most strongly correlated with youth suicides generally, followed by disruptive behaviour disorders and substance-related disorders (Fleischmann et al., 2005). However, in contrast to young women, mood disorders were less common in young men while disruptive behaviour disorders and substance-related disorders were more common (Fleischmann et al., 2005).

A recent Australian case-control psychological autopsy study showed broadly similar results (De Leo et al., unpublished). The proportion of any psychiatric diagnosis at death was similar in male and female suicide cases: 75.3% and 73.8% respectively ($\chi^2(1) = 0.52$, ns). However, having at least one psychiatric disorder at the time of death (as determined by the SCID-I) was an important risk factor for suicides compared to sudden death controls in both men and women. Further, the risk was higher in males compared to females in terms of odds ratios. For both genders, mood disorders (55.2% in male suicides and 53.8% in female suicides) were most prevalent, followed by substance use disorders in male suicides and anxiety disorders in female suicides. Substance use disorders were significantly more frequent in males suicides (16% in male suicides compared to 6.2% in female suicides ($\chi^2(1) = 4.02$, $p = 0.045$). Anxiety disorders were more common in female suicides (18.6% in male suicides compared to 33.8% in females suicides ($\chi^2(1) = 6.55$, $p = 0.010$). Nevertheless, compared to the sudden death controls, mood, substance and anxiety disorders were all significant predictors

of suicide in both genders. Psychotic disorders were relatively rare; however, they were still more prevalent in female suicides compared to male suicides (5.2% in male suicides and 9.2% in female suicides), although the difference was not statistically significant ($\chi^2(1) = 4.02$, ns). Further, they were not significantly more prevalent in suicides when compared to the controls.

However, another recent Australian study, which used data from the Australian National Coroners Information System (NCIS), examined gender differences between suicide risk factors in Victoria between 2000 and 2004. They reported that remarkably fewer male suicides than female suicides had been diagnosed with a mental illness – 37.3% of males and 64.4% of females (Judd et al., 2012). The differences in those who were currently receiving treatment were also similar, at 36.6% and 60.6% respectively. These results may indicate an under-diagnosing of mental disorders in males. Problems with male help-seeking will be further discussed later in the report.

Co-morbidity of mental disorders has generally been found to be more common among male suicides than female suicides (Henriksson et al., 1993; Isometsa et al., 1994). A study conducted in the Greater Montreal area of Quebec, Canada, found that males who died by suicide had an average of 2.4 diagnoses (Kim et al., 2003). The most common co-morbidities in these male suicides were: depressive disorders with Cluster B personality disorders (i.e., histrionic, narcissistic, borderline, antisocial; 28.7%); substance dependence with Cluster B personality disorders (27.8%); depressive disorders with substance dependence (19.1%); and depressive disorders with both Cluster B personality disorders and

substance abuse (16.5%) (Kim et al., 2003). Lesage and colleagues (1994) indicated that, when compared to their control group, co-morbidity was only diagnosed in young men who had completed suicide. Twenty-eight per cent were found to have at least two of the following disorders – major depression, borderline personality disorder, and alcohol or drug dependence. Further, studies on suicide attempters show that males with co-morbid disorders have greater odds of attempting suicide than those with no disorder (Suominen et al., 1996; Beautrais et al., 1996). This pattern was more evident among male attempters who were aged 30 years or older (Beautrais et al., 1996).

Mood disorders

As discussed previously, mood disorders, especially depressive disorders, are the most common diagnoses found in male suicide cases. This has been supported by a meta-analysis on psychological autopsy studies conducted between 1990 and 30 April 2007. Four studies, which gave gender-specific information, indicated that the summary odds ratio for mood disorders in male suicides was 6.6 compared to different types of controls (Yoshimasu et al., 2008). In addition, other studies have found that, when compared to female suicides, male suicides were less often diagnosed with depression (Arsenault-Lapierre et al., 2004; Piccinelli and Wilkinson, 2000; Szadoczky et al., 2002). It has been argued that this gender difference could be explained by the failure to diagnose depressive conditions in men (Rutz, 1999). However, male suicide rates were three – to ten-times greater than female suicide rates (Isometsa and Lonnqvist, 1998; Rihmer et al., 2002; Levi et al., 2003).

Studies which have found depression to be under-diagnosed in men have offered two reasons for this occurrence:

1. **Men and women may have different symptoms and experiences of depression.**

Studies have indicated that the symptoms of depression reported by men are generally different from those reported by women (Rutz and Rihmer, 2009; Cotton et al., 2006). It has been argued that male depression is frequently overlooked and not recognised (Cotton et al., 2006; Kessler et al., 1981). This may be due to the other issues that men experience in combination with depression which include: concomitant abusive and alcoholic behaviours, drug addiction, low stress tolerance, poor impulse control, and aggressive and violent acting out that leads to a misdiagnosis of other mental disorders, such as substance use disorder/ personality disorder (Rutz et al., 1995; Rutz et al., 1997; Walinder and Rutz, 2001). Men may find it difficult to report their symptoms (Angst and Dobler-Mikola, 1984; Aneshensel et al., 1987) and may also forget to mention symptoms (Wilhelm and Parker, 1994). In two large-scale, community-based epidemiological studies, depressed males reported significantly fewer symptoms than depressed females (Angst et al., 2002). Men tended to use general terms, such as 'mental illness', or ascribed their symptoms of depression to external causes, like peer pressure or family problems (Angst et al., 2002). In general, males may often externalise mental health problems, commonly depression (Angst et al., 2002). If depression in men is under-diagnosed, then they may not be able

to obtain appropriate treatment for their symptoms, which could mean an increased vulnerability to suicidal behaviours.

2. **Men and women may express their depression differently.**

A study conducted in a sample of teachers and students in Australia who discussed their experiences of being 'down in the dumps' (Brownhill et al., 2005) showed that males were more likely to suppress emotion and manifest their emotions in avoidant, numbing and escapist behaviours which may cause aggression, violence, and suicide. In contrast, women were more ready to release emotions at an early stage by crying and seeking help. A study that employed a sample of people who had been diagnosed with depression found that women talked about emotional distress more readily than men, which may put them at risk of being over-diagnosed with depression. Men talked more easily about physical distress than about emotions, which may put them at risk of being under-diagnosed for depression (Danielsson and Johansson, 2005). This is consistent with the findings that men are thought to have problems in verbally expressing/describing their emotions (Grossman and Wood, 1993). They are more inexpressive (Grossman and Wood, 1993) and more hypo-emotional (Heesacker et al., 1999) compared to women. As males may be less likely to express, or have difficulties with expressing their depressive feelings, their depression may be neither identified nor noticed. This may inhibit men from seeking help; they may also perceive asking for help as a sign of weakness or incompetence (Murphy, 1998).

However, other studies have looked at the potential under-diagnosis of depression in men in terms of their rates of suicide. They have tended to link the ways in which men deal with depression with an increased vulnerability to suicidal behaviours. Compared to women, previous research has indicated that men are more likely to favour substance use (including alcohol, sleeping pills, tranquilizers, nicotine, marijuana, and tobacco) as a potential coping method for depression (Angst et al., 2002; Cotton et al., 2006; Jorm et al., 2006a). In this way, depression in males can often be masked by substance-related problems. Indeed, alcohol consumption and depression may reinforce each other in a vicious cycle (Angst et al., 2002). However, it has been argued that how the use of alcohol is perceived may affect the way in which it is used and any consequent effects. In one study, communities with high and low stigma towards alcohol use were compared in terms of depression and suicide rates (Rutz and Rihmer, 2009). In high-stigma communities, such as the American Amish and Jewish communities, the rates of depression were equally high in males and females while suicide rates were equally low. In contrast, in low-stigma communities, such as European ones, the rates of depression were two – to three-times higher in females than in males while suicide rates were two – to three-times higher in males than in females. It has also been argued that the disparity between the prevalence of depression in men and women narrows in communities where alcohol and drug use are culturally prohibited (Egeland and Hostetter, 1983). However, this disparity also narrows where there is a low use of alcohol but suicide then becomes the way people escape their depression (Loewenthal et al., 1995).

To better understand the different processes men use to alleviate their suicidal ideation, one recent study interviewed men who had depression (Olliffe et al., 2012). The results showed that men followed two pathways when dealing with severe depression and suicidal ideation: (a) they connected with family, peers, and healthcare professionals, and/or drew on religious and moral beliefs; or, (b) they contemplated escape, socially isolated themselves, and/or overused alcohol or drugs to relieve their emotional, mental, and physical pain. The first pathway was crucial for quelling suicidal thoughts. Men who used it were able to eventually alleviate their depression and suicidal ideation by seeking help and re-establishing self-control. However, the second pathway heightened men's vulnerability and reinforced both the feelings of depression and suicidal ideation, which may have left them more vulnerable to completed suicide. The value men place on independence and decisive actions can be important in terms of suicide prevention (Murphy, 1998). As discussed above, men who constructed this in terms of help-seeking found their symptoms lessened; those who constructed this in terms of substance abuse and isolation appeared to be more at risk of suicide.

As a result of the different ways in which men experience, express, and cope with depression, male depression may be under-diagnosed, which could leave them at greater risk of suicidal behaviours. To better detect depression in men, two screening tools have been suggested for use in primary care and other medical settings (Rutz and Rihmer, 2009). The Gotland Male Depression Scale (Rutz, 1999) was designed specifically to detect depression in males. The WHO Well-Being Scale (WHO-5) has been shown to be useful

for those who have problems verbally expressing emotions (Rutz and Rihmer, 2009). Importantly, the ways in which males experience, express, and cope with depression are influenced by the cultures and societies in which they live. Consequently, it is imperative that screening measures are developed to be culturally sensitive, relevant, and appropriate.

Substance use disorders

Alcohol use disorders

Previous psychological autopsy studies have shown that about one-third of all male suicides were diagnosed with substance use disorders, including alcohol and a range of other drugs (Schneider, 2009). However, male suicides were most commonly diagnosed with alcohol-related disorders (Kim et al., 2003). These findings have been confirmed in a range of other studies, including: a meta-analysis of follow-up studies (Harris and Barraclough, 1997; Harris and Barraclough, 1998; Wilcox et al., 2004); results from the large Danish Psychiatric Case Register study which had a follow-up of up to 20 years (Hiroeh et al., 2001); and, a meta-analysis based on psychological autopsy studies in 14 populations (Yoshimasu et al., 2008). Further, these disorders were also more prevalent in men who attempted suicide independently of alcohol consumption at the time of the attempt (Boenisch et al., 2010). An Australian survey revealed that, compared to females, males more often misused alcohol and drugs as a response to their suicidal crises (De Leo et al., 2005). A Norwegian follow-up study more specifically linked a higher relative risk of suicide in male alcohol abusers older than 40 years, compared to younger males (Rossow and Amundsen, 1995). This is consistent with the finding that alcohol dependence appeared to be most prevalent among middle-aged (35-59 years)

male suicides in Estonia (Kõlves et al., 2006a). However, higher levels of alcohol consumption were also found in male adolescent suicide attempters (Borowsky et al., 2001; Evans et al., 2004).

Previous research has indicated that alcohol dependence/abuse may leave people vulnerable to depression and vice versa. It has been found that alcohol use disorders are correlated with brain damage and neurobehavioral deficits. As discussed in a previous section, this could potentially be associated with suicidal behaviours (Oquendo et al., 2004). Studies have demonstrated that the short-term effects from alcohol intoxication can include an inhibition of emotions, an increase in psychological distress and aggressiveness, an impairment of judgment and problem-solving skills, increased impulsive behaviour, and a lower threshold for suicidal behaviours (Pirkola et al., 2004; Brady, 2006). Further, another study has further indicated that these impacts can lead to a reduction in self-esteem caused by consequent failures in social roles and relationships; these can result in isolation and loss of support, which increases the risk of depression and suicidal behaviours (Moller-Leimkuhler, 2003). Alcohol abuse/dependence is correlated with an increased risk of suicide, especially among young people who binge-drink (Pirkola et al., 2004; Brady, 2006). In this way, it appears that men may be more vulnerable to depression and suicide if there is a co-morbid alcohol-related disorder.

Other substance use disorders

Alcohol is not the only substance that, when abused, can leave men more vulnerable to suicidal behaviours. Previous research has found that the risk of suicide in both men and women who smoked cigarettes was approximately

twice that of the general population (Harris and Barraclough, 1997; Harris and Barraclough, 1998). A similar relationship between suicide and cigarette smoking has also been reported in other epidemiological studies (Angst and Clayton, 1998; Hemmingsson and Kriebel, 2003; Tanskanen et al., 2000), especially in young men (Riala et al., 2007). It should also be noted that more men are daily smokers than women (Australian Institute of Health and Welfare, 2008a).

The use of illicit drugs has also been studied in relation to suicidal behaviours. An American study reported a positive relationship between the use of illicit drugs at a young age and suicidality (defined in this study as suicidal ideation and suicide attempts) among male students, in Grades 9-11 (Cho et al., 2007). Here, it appeared that the age at which these men began using illicit drugs could impact on their suicidal behaviours, not simply the use of drugs alone.

An overview of cohort studies and psychological autopsy studies (Wilcox et al., 2004) held that the standard mortality ratio for suicide in men with opioid use disorders was twice as high when compared to women with the same disorders. However, the same study also indicated that the standard mortality ratio for suicide of people who had general drug abuse was lower in men than women. Another study found that, when compared to a control group, the risk of suicide appeared to be elevated in men with polysubstance-related disorders, particularly younger men (Schneider et al., 2006). However, it can be difficult to classify suicides in those with substance use disorders as the distinction between an intentional and a non-intentional overdose death may often be uncertain (Wilcox et al., 2004; Schneider, 2009).

Other mental disorders

A systematic review of the 11 studies which have examined suicide among people with schizophrenia, published between 2004 and January 2010, suggested that male schizophrenia sufferers appeared to be at greater risk of suicide compared to female schizophrenia sufferers (Hor and Taylor, 2010). Furthermore, previous studies have also found other factors that appear to increase the risk of suicide among people with schizophrenia, including: youth; a higher level of education; depression; previous suicide attempts; active hallucinations and delusions; the presence of insight; co-morbid chronic physical illness; a family history of suicide; and, co-existing alcohol/drug misuse (Hor and Taylor, 2010; Carlborg et al., 2010; Hawton et al., 2005; De Hert et al., 2001; Karvonen et al., 2007). In addition, studies have also indicated further possible risk factors, such as: agitation or motor restlessness; fear of mental disintegration; hopelessness; poor adherence to treatment; chronic illness with frequent relapses; frequent short hospitalisations; impulsive behaviour; high pre-morbid function; high intelligence quotient; and recent loss (Carlborg et al., 2010; Hawton et al., 2005; De Hert et al., 2001). Further, it appears that the risk of suicide may be highest during the first year subsequent to the onset of schizophrenia; suicide risk then increases during times in which sufferers are admitted to hospital and during the early post-discharge stage (Carlborg et al., 2010). However, early onset of the disorder and having a useful daily activity (De Hert et al., 2001), as well as the receipt of adequate treatment, may provide some protection against suicide among individuals suffering schizophrenia (Hor and Taylor, 2010).

Although Borderline Personality Disorder is the only personality disorder that includes suicidal behaviour as a criterion in the DSM-IV-TR, other personality disorders have been shown to correlate with an increased risk of suicide among men. Previous research has indicated that men with at least one personality disorder (an Axis II disorder) had seven-times the risk of suicide than men without a personality disorder (Schneider et al., 2006). This increased risk appeared to be especially evident in men who were diagnosed with paranoid, narcissistic, borderline, avoidant and passive-aggressive personality disorders (Schneider et al., 2006). Significantly higher suicide risk was also found in males who had anti-social personality disorder than in controls (Kim et al., 2003). In addition, co-occurrence of personality disorders from more than one cluster was associated with increased suicide risk (about 16-fold) in men (Schneider et al., 2006). This study referred to three clusters of personality disorders which included: Cluster A – paranoid, schizoid, schizotypal; Cluster B – histrionic, narcissistic, borderline, anti-social; and, Cluster C – avoidant, dependent, obsessive-compulsive, depressive, passive-aggressive.

Lastly, studies have also indicated that other mental disorders – such as conduct disorders, somatoform disorders, Post-Traumatic Stress Disorder, adjustment disorders, cognitive disorders (i.e., delirium, dementia, amnesia) – have been more frequently diagnosed in male suicides compared to control groups (Kim et al., 2003; Schneider et al., 2006). However, little research has been undertaken to further examine these disorders in men.

Key Messages

- Although approximately 90% of people who committed suicide have been diagnosed with mental disorder(s) prior to death, a recent Australian psychological autopsy study has shown that this risk factor might be over-estimated.
- Mood disorders are most prevalent in Australian male suicides, followed by substance use disorders.
- Men and women have different symptoms of depression, which they express differently. As a result, male depression may be under-diagnosed, which may leave them at greater risk of suicidal behaviours.
- Co-morbidity of mental disorders (mood disorders, substance dependence/abuse, Cluster B personality disorders) most likely place males at higher risk of suicidal behaviours.

Somatic disorders

A somatic disorder is characterised by physical, psychological, and social symptoms. A person with a somatic disorder may experience pain or physical incapacitation, as well as subsequent distress and worry about whether these experiences will become life-threatening (Stenager and Stenager, 2009). As a consequence, this may also impact upon a person's social experiences, including the ability to work, increased financial burden, and the need for extensive care from public social services or family members (Stenager and Stenager, 2009). Individuals with a somatic disorder may require the ability to significantly adapt and adjust to a series of sudden life changes (De Ridder et al., 1998). An increased risk of suicide among patients with somatic disorders has been evidenced in previous studies, mainly conducted in Europe (De Leo et al., 1999) and the United States (Druss and Pincus, 2000). The risk of suicide may vary during the course of the somatic disorder; risk may be at its highest in the times immediately surrounding the diagnosis or at different times long afterwards. Further, older people may be more vulnerable to somatic disorders. One study has shown that important precipitating reasons for suicide among males aged 65+ years were to avoid the impacts of physical illness or being a burden (Snowdon and Baume, 2002).

Pain

Pain is commonly associated with somatic disorders such as cancer (Stenager and Stenager, 2009). As shown in a review paper of the literature concerning the prevalence of suicidality in chronic pain sufferers (Tang and Crane, 2006), the risk of suicide was double that found in the control sample. In this study, the lifetime prevalence of

suicidal ideation and suicide attempts in individuals with chronic pain were 5-14% and approximately 20%, respectively. Similarly, another study found that acute and chronic pain patients undergoing rehabilitation were at greater risk of suicidality than the pain-free community controls (Fishbain et al., 2009). When comparing male and female pain sufferers, two studies have suggested that male pain sufferers were less vulnerable to suicidal ideation (Treharne et al., 2000) and less likely to die by suicide (Timonen et al., 2003) than female sufferers. However, no gender differences were found in other studies conducted with relatively smaller samples of patients in pain clinics (Smith et al., 2004a; Smith et al., 2004b). Tang and Crane (2006) indicated that common risk factors for suicidality among chronic pain sufferers were the type, intensity, and duration of pain, and the consequent sleep-onset insomnia co-occurring with specific types of pain. It was also emphasised that psychological processes connected to the experience of pain – such as feeling helpless and hopeless, longing to escape, catastrophe and avoidance of pain, and a lack problem-solving skills – were fundamental to better understand suicidality in chronic pain sufferers.

Cancer

A number of studies have shown that cancer is correlated with an elevated suicide risk. Higher rates of suicide have been found among male cancer patients, when compared to the general population, in the United States (Misono et al., 2008; Kendal, 2007; Fox et al., 1982) and Estonia (Innos et al., 2003). This risk has tended to be highest within the first few months after diagnosis. Similar findings of increased risk, albeit in both male and female cancer sufferers, have been

reported in studies conducted in Denmark (Yousaf et al., 2005), Finland (Louhivuori and Hakama, 1979), Italy (Crocetti et al., 1998), Norway (Hem et al., 2004), Sweden (Bjorkenstam et al., 2005), Switzerland (Chatton-Reith et al., 1990; Levi et al., 1991), and Japan (Tanaka et al., 1999). In contrast, a study conducted in Western Australia indicated that older adults with cancer were less vulnerable to suicidal behaviours. Gender-specific data were not provided (Lawrence et al., 2000).

Studies have also been conducted which examine suicidal behaviours among people with specific types of cancer. In Norway, males with cancer of the respiratory organs had an increased risk of suicide (Hem et al., 2004). More recently, findings from a large cohort study on US cancer patients diagnosed between 1973 and 2002 indicated that male patients with cancers of the lung and bronchus, stomach, oral cavity and pharynx, and larynx were most vulnerable to suicide (Misono et al., 2008). In Estonia, male suicide cases most commonly had cancers of the oesophagus and pancreas (Innos et al., 2003).

Neurological disorders

Similar to the studies of cancer, the connections between suicidality and neurological disorders have also been examined. Studies have indicated a higher risk of suicide among individuals who suffer from multiple sclerosis (MS), stroke, traumatic brain injury, spinal cord lesions, epilepsy, and Huntington's chorea (Faber, 2003; Kishi et al., 2001). More specifically, a Swedish study demonstrated a significantly greater risk of suicide in male MS patients, compared to female MS patients and the general population (Fredrikson et al., 2003). Most importantly, this suicide risk was particularly high in the first year after diagnosis and

among younger male MS patients. In Denmark, between 1953-1985, the standard mortality ratio (SMR) of suicide for patients with onset MS was 1.83; this was higher in males diagnosed with MS (SMR=1.98) than females with MS (SMR=1.65) (Stenager et al., 1992).

Stroke and traumatic brain injury (TBI) may also be potential risk factors for suicide. In a Danish study of stroke patients, who were admitted to hospital and underwent a 17-year follow-up, females appeared to have a higher risk of suicide than males, especially if they were younger than 60 years of age (Stenager et al., 1998). Previous research has demonstrated an increased risk of depression in females after suffering a stroke (Andersen et al., 1995). However, this has yet to be connected to increased suicidality. Similarly, a Danish study that examined suicide in relation to TBI also found that females had higher suicide rates than males (Teasdale and Engberg, 2001). However, in Finland, male TBI patients are more vulnerable to suicidal behaviours than female TBI patients (Mainio et al., 2007).

A number of studies have indicated that suicide is one of the causes of death which contributes to the increased mortality of people with epilepsy (Nilsson et al., 2002; Jones et al., 2003). Suicide risk was higher in men than women with epilepsy and notably high in epilepsy patients with co-morbid mental illness (Nilsson et al., 2002). Further, suicide risk is also higher in patients with temporal-lobe epilepsy following temporal lobe excision (Bell et al., 2009), and during the first half-year following diagnosis (Christensen et al., 2007).

Huntington's disease (HD) is a neurodegenerative genetic disorder which has also been examined. A

recent review paper indicated that people with HD had a four-times greater risk of dying by suicide compared to the general population (Bindler et al., 2010). A Hungarian study found that more male HD patients suicided than female patients (Baliko et al., 2004). Two critical periods of increased suicide risk for those suffering from HD have been suggested: the first period is immediately prior to the formal diagnosis and the second period is when independence diminishes (Paulsen et al., 2005).

In contrast, Parkinson's disease (PD), a neurological disorder that primarily affects the elderly, is associated with a decreased risk of suicide, although PD sufferers may be more at risk of experiencing symptoms of depression (Myslobodsky et al., 2001). A similar finding was also made in a Danish study on males with PD (Stenager et al., 1994). Importantly, it should be noted that co-morbid psychiatric disorders were more predictive of suicidal ideation in PD patients than PD-related disease variables (Nazem et al., 2008).

HIV/AIDS

Previous research suggests that, similar to other sufferers of somatic disorders, people diagnosed with HIV/AIDS may be more vulnerable to suicidal behaviours. One study found that male AIDS sufferers aged 20-59 years had a 36-times increased risk of suicide than male non-sufferers in the same age-group, and a 66-times higher risk than the general population in New York City (Marzuk et al., 1988). The same study found that falling from a height appeared to be the most common method of suicide among individuals with AIDS. A review study found that people diagnosed with HIV/AIDS had an increased rate

of suicide. It should be noted that the majority of the reviewed studies examined homosexual/bisexual populations, with little data about heterosexual and female populations (Komiti et al., 2001). Further, mental disorders and substance abuse also tended to be present with suicidal behaviours. Several factors have been identified which appear to increase the risk of suicidal behaviours in people diagnosed with HIV/AIDS (Starace, 1995). These include: multiple psychological stressors, perceived social isolation and unavailable social support, perception of self as victim, reliance on denial as a central or only defence, and drug abuse (Starace, 1995).

Intellectual disability

Studies examining a potential association between intellectual disability and male suicidal behaviours have been inconsistent. A Swedish study indicated that men who achieved low intelligence scores in psychological testing had a 2-3 times higher risk of suicide risk than men who achieved high intelligence scores (Gunnell et al., 2005b). In contrast, a Finnish study found that males with mental retardation had a lower risk of suicide when compared to the general population (Patja et al., 2001). Within this specific study, those who suicided tended to have mild retardation and at least one other psychic disorder. It has been proposed that these inconsistent findings may be the result of the difference in magnitude of intellectual disability examined in the studies (Stenager and Stenager, 2009).

Other somatic disorders

Other somatic disorders such as diabetes mellitus, tinnitus, and disorders of the heart, lung and bowel have also been implicated as contributors

to male suicidality. A Danish cohort study on the prevalence of suicide rates in men with insulin-dependent diabetes mellitus (Kyvik et al., 1994) showed that 7.8% of deaths (out of 153) were classified as suicide, and that these occurred mostly between 20-24 years of age. However, it was also suggested that suicides were underestimated as many patients died from unknown causes. A study in the United Kingdom, which examined 28 patients with tinnitus who committed suicide, found that the suicides tended to be male, elderly, and socially isolated (Lewis et al., 1994). They also had at least one psychiatric disorder (97%), mainly depression (70%). One study also demonstrated an increased risk of suicide in males with Crohn's disease (Cooke et al., 1980).

Key Messages

- There exists very limited Australian research on the relationship between somatic disorders and suicidal behaviours.
- Physical illnesses in males are frequently co-morbid with psychiatric disorders, particularly depression and alcohol abuse. This makes for increased vulnerability to suicidal behaviours.
- Avoiding the impacts of physical illness or being a burden seems to be the precipitating reasons for suicide among elderly males who suffer from physical illness.

Social and economic determinants

Humans are social beings and, as such, cannot exist for long outside a social environment. This is a symbiotic relationship where the interactions performed by humans create and impact upon their social environment that, in turn, influences their own behaviours and attitudes. According to Barnett and Casper (2001), “components of the social environment include built infrastructure; industrial and occupational structure; labour markets; social and economic processes; wealth; social, human, and health services; power relations; government; race relations; social inequality; cultural practices; the arts; religious institutions and practices; and beliefs about place and community” (p. 465). Further, the social environment is in a constant state of development. The WHO also holds that social environments, or the social conditions in which people live and work, have a major influence on health (World Health Organization, 2011), which is supported by the work of Yen and Syme (1999) indicating that the social environment influences disease pathways.

To better understand how the social environment influences suicide within a population, we need to go back to the famous works of French sociologist, Emile Durkheim. Durkheim argued that suicide rates represented a ‘social fact’ that could be explained by other ‘social facts’, such as social structures and institutions. In his book ‘Le Suicide’ (1897/2002), Durkheim used an empirical sociological method to explain varying suicide rates among different groups and societies. While suicide can be studied using psychological methods, it can also be studied as a social fact *sui generis* (Jones 2000). In this way, Durkheim drew a clear

distinction between the social and psychological facts related to suicide. Subsequently, it has been found that differences in suicide rates are related to the degrees of “social integration” (the bonds and links that attach individuals to social groups outside of themselves) and “social regulation” (the mechanisms through which society imposes restraints and limits on individual needs) in different societies (Morrison, 2006).

With these foundational concepts of integration and regulation, Durkheim (1897/2002) constructed four ‘pathological’ types of suicide. Low levels of social integration, according to Durkheim, cause egoistic suicides, where the individual is isolated from the community and so places a higher value on self-interested goals over those of the group. Excessive integration causes altruistic suicides, where devotion to common goals is placed above individual wellbeing. On the other hand, low levels of social regulation are related to anomic suicides, where societal norms are no longer acceptable or accurately reflective of social reality. Excessive regulation is related to fatalistic suicides, which occur in circumstances of extreme oppression – ‘futures pitilessly blocked and passion violently choked by oppressive discipline’ (Durkheim 1897/2002). Durkheim argued that males were more sensitive to shifts in the social environment than females, who tend to be buffered by their roles in the family. As a consequence, suicide was then constructed as a masculine behaviour, while feminine (family and social) roles were perceived to be protective against suicide (Kushner, 1993).

While Durkheim’s (1897/2002) theories about suicide have been subject to misinterpretation, as well as major criticism (e.g., the phenomenological approach), concepts such as ‘social integration’

have formed the basis of subsequent theoretical concepts such as “social capital” (Berkman et al., 2000). Further, there is also a growing consensus in public health that social environments are major determinants of health and wellbeing (Marmot et al., 2008). Consequently, while suicide is an individual act, it does not occur in a social vacuum.

Economic crisis and socioeconomic factors

Recent economic crises have caused serious concerns among health experts about their potential impacts on mental health (Uutela, 2010) and mortality (Simms, 2009), particularly suicide mortality (Gunnell et al., 2009). According to Durkheim, rapid social changes can cause “anomie” (defined above), resulting in increased rates of suicide. Increases in suicide mortality within countries affected by economic crises have been demonstrated during the Great Depression of the 1920-30s (Tapia Granados and Diez Roux 2009), the socio-economic crisis in the former Union of Soviet Socialist Republics that began in the 1990s (Walberg et al., 1998), and the Asian economic crisis of 1997-98 (Chang et al., 2009). In the former USSR and East/South-east Asian countries, male suicide rates were more affected by the economic crises than female suicide rates (Wasserman and Värnik, 1998; Rancans et al., 2001; Chang et al., 2009). Time-series analyses of the years 1985-2006 indicated that some of these impacts on male suicide rates were attributable to increases in unemployment in Japan, Hong Kong, and Korea. However, at this stage, it is only possible to speculate about the possible impacts of the most recent global economic crisis on suicide rates. It should also be noted that Stuckler et al. (2009), in an analysis of 26 European countries, indicated that active

labour market programmes might mitigate the adverse effects of unemployment on health.

While several studies have analysed the time trends of suicide and unemployment, the relationship between unemployment and the suicide rate remains unclear. At an aggregate level, studies show inconsistent or contradictory results. An Australian study showed a correlation between the suicide rate and unemployment rate for the years 1968 to 2001 (Berk et al., 2006). A significant positive correlation was shown for young males in the age groups 0-19 years ($R^2 = 0.45$) and 20-34 years ($R^2 = 0.71$), but there was a negative correlation for older males and for females across age groups (Berk et al., 2006). Another analysis of gender-specific age-standardised suicide rates and unemployment rates in Australia, from 1907 to 1990, indicated that there was no simple year-by-year relationship between suicide and unemployment. However, the study results strongly supported the hypothesis that unemployment was a significant predisposing factor to an increased risk of suicide, especially among males (Morrell et al., 1993). Using data from 1946-1984, Lester and Yang (1991) found no relationship between suicide and unemployment rates for Australian males, but that unemployment rates significantly predicted the suicide rates of American males. However, an analysis of data collected in Local Government Area (LGA) regions of Queensland between 1999 and 2003 showed that unemployment was related to suicide rates (Qi et al., 2009). In addition, maximum temperature, proportion of the Aboriginal and Torres Strait Islander population, and proportion of people with low individual income played roles in predicting the suicide rate. In this study, the impact was stronger on the female suicide

rate compared to the male suicide rate (Qi et al., 2009). In conclusion, it seems that the association between suicide rates and unemployment rates in Australia on an aggregate level is multilayered.

Familial factors

To the authors' knowledge, only one Australian study on suicide has included familial integration measures, such as the rates of births, marriages and divorces. This older study analysed and compared the divorce/marriage ratios in Australia and the United States. Despite a significant relationship with male and female suicide rates in the United States, divorce/marriage ratios were not related to male or female suicide rates in Australia (Lester and Yang, 1991). However, Australia has been included in cross-cultural studies which have analysed several factors (Cutright and Fernquist, 2000; Neumayer, 2003; Milner et al., 2012a). Neumayer (2003) analysed age-specific suicide rates and several socioeconomic factors from 68 countries between 1980 and 1999. He found: marriage rates were highly significant determinants of male suicide rates (negative association), but non-significant for female rates; similar results were found for unemployment rates (positive association). Furthermore, birth and divorce rates were significant predictors for both genders; the first had a negative association and the second a positive association with suicide rates. A recent study by Milner et al (2012a) analysed the impacts of socio-economic variables on male and female suicides in 35 countries (including Australia) during 1980-2006 and found that economic factors such as the unemployment rate, proportion of females in the labour force, and expenditure on health per capita impacted upon male suicide rates. However, population-level indicators of

interpersonal relationships, such as divorce rates, were not related to suicide rates. Despite the similarities in terms of predictive factors between males and females, males were more sensitive to changes in the social environment (Milner et al., 2012a).

However, ecological studies on contextual factors have been criticised as they are subject to the ecological fallacy – where the link between the macro – and micro-levels is questioned (Neumayer, 2003). Furthermore, aggregate level studies may have problems with data quality, such as under-reporting and changes in classification procedures and definitions over a longer period of time. There can also be inconsistencies between different aggregate-level studies using different time periods and methodologies.

Employment status

Aggregate-level studies have suggested that there is a correlation between unemployment rates and suicide rates. Furthermore, individual-level studies have also indicated that the unemployed are at a higher risk of suicidal behaviours. A meta-analysis of 16 psychological autopsy case-control studies found that unemployment increases suicide risk approximately two – to three-fold (Yoshimasu et al., 2008). Additionally, analyses of the 1997 National Survey of Mental Health and Wellbeing of Adults showed a strong relationship between employment status and the incidence of suicidal thoughts, plans and attempts (Flatau et al., 2000). Unemployed people had a two-fold higher incidence of suicidal thoughts, plans, and attempts when compared to full-time employed people. This incidence was higher for females than males (Flatau et al., 2000). The 2007 National Survey of Mental Health and Wellbeing

revealed relatively similar trends (Johnston et al., 2009). However, over 12 months, the highest prevalence of suicidal ideation and planning was found in people out of the labour force. In this study, while the unemployed group tended to have a higher prevalence of suicidal ideation and plans compared to the employed group, the difference was not statistically significant. Further, there were no differences in the prevalence of suicide attempts by employment status (Johnston et al., 2009). An analysis of 5,037 respondents in South Australia also showed that people who were unemployed, or unable to work, had a higher risk of suicidal ideation compared to those who were full – or part-time employed (3.9% vs. 16%; OR = 4.73, 95%CI = 3.25-6.89). Unfortunately for present purposes, these analyses were not gender-specific.

Other Australian studies have found that not being currently employed is an important factor in distinguishing between people who have suicidal ideation and those who have attempted suicide (Pirkis et al., 2000; Fairweather et al., 2006). Using a multinomial logistic regression model, Pirkis et al. (2000) showed that not being employed was the only significant factor distinguishing suicide attempters from ideators (Relative Risk Ratio RRR = 2.96; 95%CI = 1.47-5.99). Possible explanations for this might include the interrelationships between recent job loss and the connected losses of self-respect and income. Further, work mates might be the only source of social support for middle-aged males (Fairweather et al., 2006).

Marital status

Several studies have shown the protective effect of marriage on males and the increase in suicidality among separated and divorced males. A meta-analysis showed that not being married can increase suicide risk 2-fold (Yoshimasu et al., 2008). However, it should be noted that most studies use 'traditional' categories of marital status and so often do not distinguish 'separation', which can then fall under either 'divorced' or 'married' categories. Cantor and Slater (1995) conducted the first Australian study which included separation as a separate category. Compared to their married counterparts, separated males in Queensland had a 6.2-timer higher risk of suicide. It should also be noted that divorced males and females had a similarly higher risk. Another study using data from the Queensland Suicide Register also showed that suicide risk was highest among separated males, especially younger males aged 15-24 years (Wyder et al., 2009). Furthermore, analyses of the relationships between marital status, suicidal ideation and suicide attempts, using the 1997 National Survey of Mental Health and Wellbeing of Adults, confirmed that not being married or being in a *de facto* relationship significantly increased the risk of suicide ideation and attempts (Pirkis et al., 2000). However, this study did not distinguish gender in its findings.

Masculinity

As examined in previous sections, employment and marriage are very important social institutions in men's lives. Indeed, men appear to be most vulnerable to suicidal behaviours when changes in their employment and marital status occur; these life events may often trigger suicidal behaviours. Several authors have indicated that ideals of

masculinity and traditional gender expectations may potentially be important mediators between separation or unemployment and male suicidal behaviours (Berk et al., 2006; River and Fisher, 2010). Indeed, River and Fisher (2010) indicate that family and workplace might be 'key' factors in understanding the social process of constructing masculinity. Further, Moller-Leimkuhler (2003) argued that:

The traditional male gender-role, as defined and reinforced within the public realm, is characterised by attributes such as striving for power and dominance, aggressiveness, courage, independency, efficiency, rationality, competitiveness, success, activity, control and invulnerability. The male gender-role in Western cultures implies not perceiving or admitting anxiety, problems and burdens which might develop under the conditions of danger, difficulties and threats. Traditionally, anger, aggressiveness and hostility are socially accepted as the male code of expressiveness. (p. 3)

These characteristics can lead to a constant fear of failure, pressure to meet expectations, and suppression of stress (Moller-Leimkuhler, 2003). Men may also feel inhibited from seeking help, as this is associated with a loss of control and status (Moller-Leimkuhler, 2003). Indeed, emotional disclosure may be perceived to be a feminine/homosexual type of behaviour (Cleary, 2005). An Irish study, where 52 men aged 18 to 30 years were interviewed after a suicide attempt, revealed non-disclosure to be the key issue in examining the pathways towards male suicidal action (Cleary, 2005). More than two-thirds of these participants never disclosed emotional matters and coped with

their distress by frequently consuming alcohol and other drugs. However, these behaviours seemed to increase their fear and anxiety which widened the gap between their projected and actual selves. In addition, a few Australian papers have indicated the terminal effects of hegemonic masculinity (which indicates the men's dominance), especially in the context of rural male suicides (Alston, 2012; Bourke, 2003; River and Fisher, 2010).

Links with other factors

It must be noted that the relationships between various factors and suicidal behaviours is complicated. Some studies have shown that psychological/psychiatric problems might be the cause of divorce or unemployment (social selection); in contrast, other studies have indicated that psychological/psychiatric problems might be the result of divorce or unemployment (social causation) (Butterworth and Rogers, 2008; Paul and Moser 2009). The interrelationships between different factors will be further discussed in the next section.

Key Messages

- The association between suicide rates and unemployment rates in Australian males is complex, but individual level studies have indicated elevated suicide risk in unemployed males.
- Australian studies have shown separated males to have a high risk of suicide.
- Men appear to be most vulnerable to suicidal behaviours when changes in their employment and marital statuses occur; this is potentially mediated by masculine ideals and traditional gender expectations.

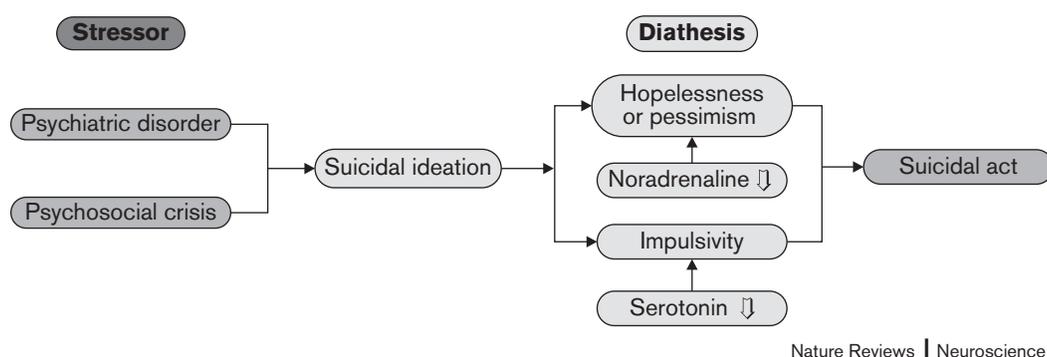
The suicidal process

Previous sections within this chapter have presented different determinants of suicidal behaviours that are not attributable to one single cause. These determinants show complex interactions between biological, psychological, and social factors (Van Heeringen et al., 2000). Several models exist to understand suicidal behaviours as multidimensional complex phenomena. Most models show suicidality as a continuum, starting from suicidal ideation and gradually proceeding to the suicidal act, if an appropriate intervention does not interrupt this process. However, the length of the suicidal process might vary from a few days, in young people with an adjustment disorder, to lifelong for people with chronic depression, substance abuse or schizophrenia (Wasserman, 2001).

In this section examples of models will be presented. These aim to increase understanding of suicidal behaviours in the context of several factors. Although these models are not gender-specific, some factors are more prevalent in suicidal males or may elevate the risk of suicide in males, as examined previously.

Stress-Diathesis model

One model that explains suicidal behaviours is the Stress-Diathesis Model presented in Figure 18 (Mann, 2002, 2003). According to the Stress-Diathesis Model, acute or chronic stressors such as primary psychiatric disorders or psychosocial crises (including unemployment, separation, somatic illness, and bullying) may lead to suicidal ideation. In vulnerable persons with the diathesis (a genetic predisposition to suicidality), this could then lead to a suicidal act. Components of diathesis include hopelessness, pessimism, and impulsivity, and their neurobiological correlates, such as involvement of the serotonergic and noradrenergic systems, and the ventromedial prefrontal cortex.

Figure 18. Stress-Diathesis Model of suicidal behaviour

Source: Mann, 2003

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Stress-Vulnerability Model

Figure 19 presents the Wasserman (2001) Stress-Vulnerability Model that maps the development of the suicidal process from ideation to act. Wasserman (2001) supplements the Stress-Diathesis Model with this broader model in order to provide better understanding of processes and dynamics.

The Stress-Vulnerability Model takes into account the following factors:

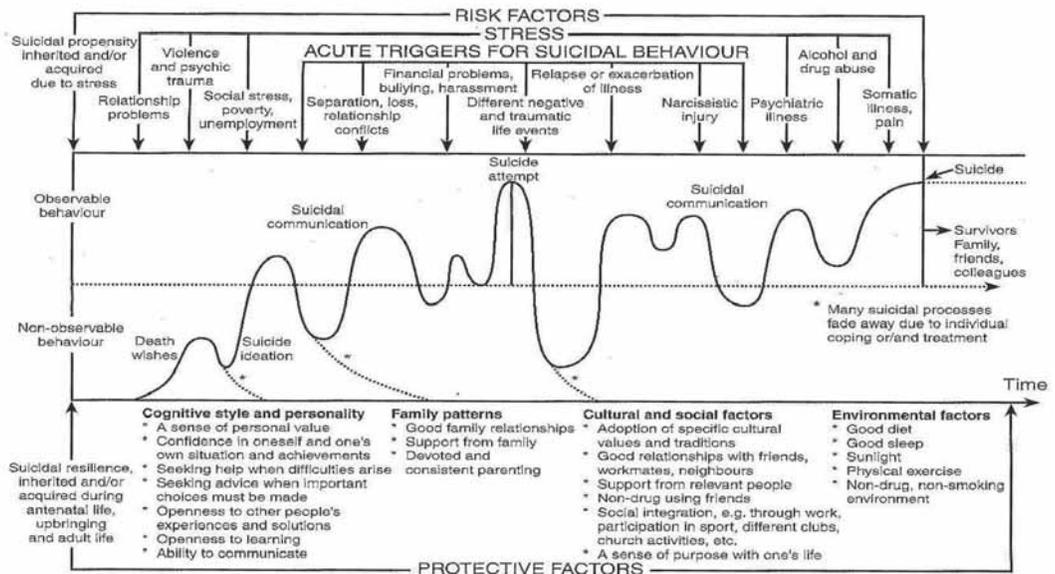
- the role of the suicidal person's cognitive style and personality;
- the role of the environment;
- the way in which stress contributes to the diathesis becoming manifest;
- how other people's reactions and psychosocial and cultural support can contribute to the outcome; and,

- the circumstances in which a person's vulnerability is held back (protective factors) and in which it is expressed in suicide or attempted suicide (risk factors). (Wasserman, 2001; p.19)

Wasserman's model takes into account non-observable behaviours, such as the case when a person may already be experiencing death wishes and suicidal ideation, but does not necessarily communicate or act on them. Without action, these suicidal feelings may eventually disappear. However, once a certain threshold is reached, behaviours will become observable, as the person communicates their feelings by verbal accounts or non-fatal suicidal behaviours, such as suicide attempts. The suicidal processes of the Stress-Vulnerability Model are fluid, affected by both protective and risk factors, reacting to stressors

and acute triggers, moving between observable and non-observable behaviours, until either dissipating or advancing to a level where the end is suicide.

Figure 19. Stress-Vulnerability Model and development of the suicidal process



Source: Wasserman, 2001, p. 20

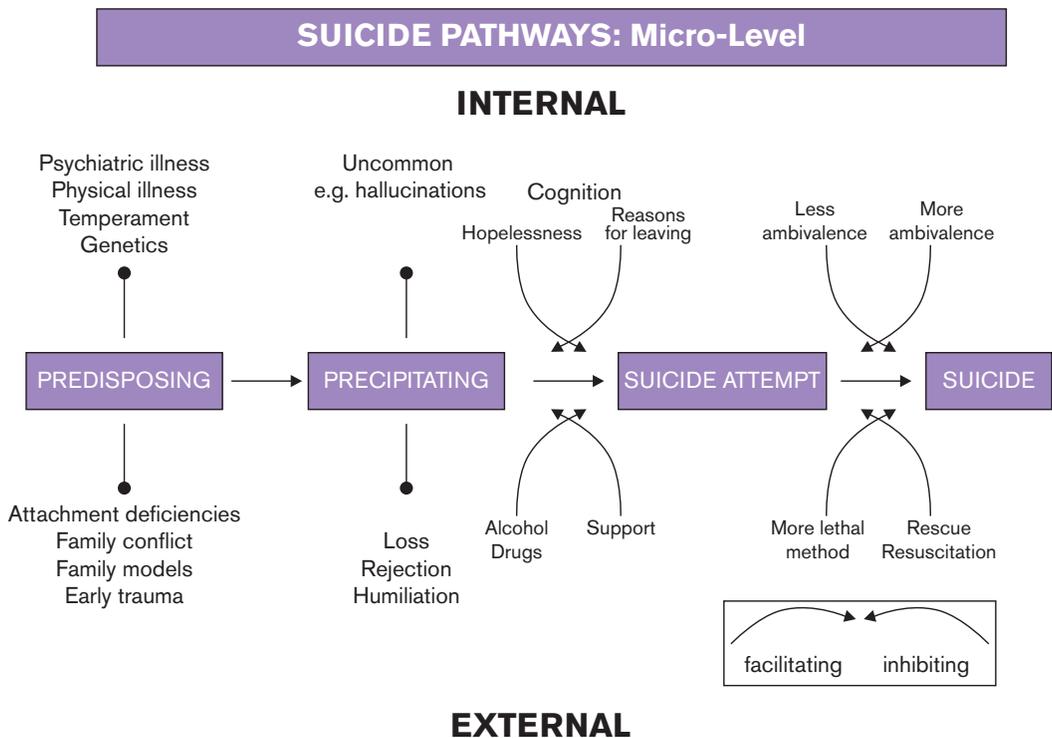
Reproduced with kind permission from Danuta Wasserman

Multicausal model of suicide pathways

Figure 20 presents the multicausal model of suicide pathways developed by Cantor and Baume (1999) and revised by the Australian Institute for Suicide Research and Prevention. This model divides factors influencing suicide pathways into predisposing (distal) and precipitating (proximal) factors. Further, they are divided between internal factors, related mainly to individual (biological and psychological) aspects, and external factors, related to environmental (social) aspects of human life. This model also presents suicidality as a

process, where predisposing factors together with precipitating factors, such as loss and rejection, can drive suicidal ideation to action. Support and reasons for living can reverse the process, while alcohol and drug use and feelings of hopelessness can drive it forward towards a suicide attempt. Ambivalence about intention to die and any interference from others, such as being rescued while attempting suicide, may prevent the process from ending in suicide. However, a stronger intention to die and the choice of a more lethal method may facilitate suicide.

Figure 20. Multicausal model of suicide pathways



Source: Cantor and Baume, 1999, adapted by the Australian Institute for Suicide Research and Prevention

In conclusion, the pathway to suicide is a process, starting from death wishes, and influenced by complex dynamics of biological, psychological, and social factors. Several internal and external factors influence this pathway, either driving the process towards suicide or reversing it.

Key Messages

- Determinants of suicidal behaviours show complex interactions among biological, psychological, and social factors.
- Several models exist to understand suicidal behaviours as multi-dimensional complex phenomena. Although these models are not gender-specific, some factors are more prevalent in suicidal males or may elevate the risk of suicide more in males.

Chapter 3

Male suicide risk groups

Kairi Kõlves, Lay San Too, Jerneja Svetcic, Kathy McKay, Naoko Ide and Diego De Leo

This chapter examines those groups of males who have been identified to be at an elevated risk for suicide in Australia. These groups include: youth, elderly, Aboriginal and Torres Strait Islander Peoples, rural and remote, immigrants, gay and bisexual, homeless, separated, and suicide survivors (people who have lost their loved ones by suicide). It presents an overview of the available information from Australian and international studies on the epidemiological dimensions, as well as risk and protective factors, of fatal and non-fatal phenomena in these high-risk groups of males.

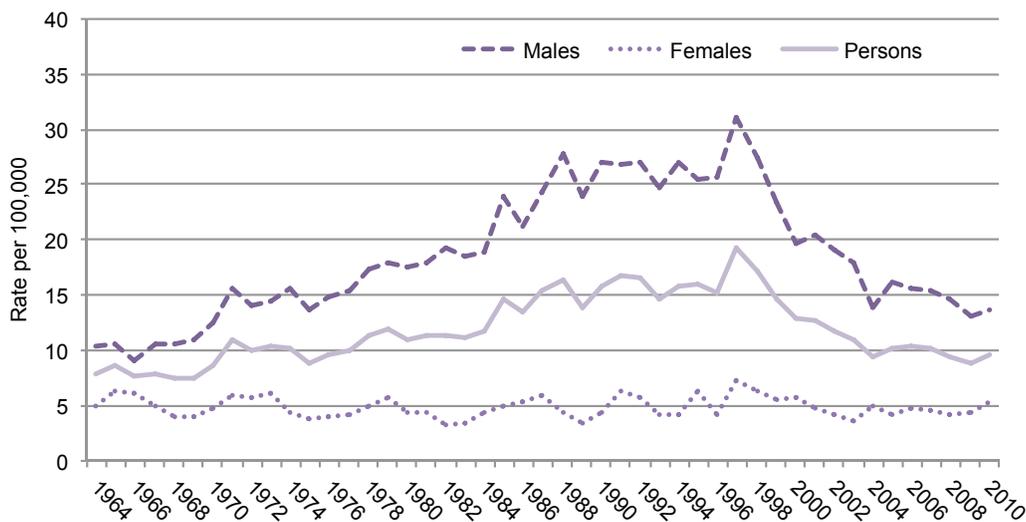
Young males

Size of the problem

Generally, suicide rates tend to increase with age, and are particularly high in the elderly (aged 75 years and older). However, globally, suicide rates among the 15-24 years age-group increased remarkably in English speaking countries (including the United Kingdom, Australia, New Zealand, the United States, and Canada), reaching higher levels than in the elderly (De Leo, 2002). However, since 2000, there has been a worldwide decline in youth suicide rates (Apter et al., 2009).

In Australia, suicide rates among males, aged 15-24 years, have increased from the 1960s; in 1964, the suicide rate was 10.5 per 100,000 increasing to a peak of 31.0 in 1997 (Australian Bureau of Statistics, 2011). In contrast, the suicide rate among female youth has changed little over the same period; from 5.1 in 1964 to 7.2 per 100,000 in 1997 (Australian Bureau of Statistics, 2011). Analyses revealed that these increases were largely explained by period effects, since suicide was twice as likely among those aged 15-24 years in 1985-1997 than in 1964-1969 (Lynskey et al., 2000). However, since 1998, suicide rates among male youths in this age group have declined dramatically, reaching a rate of 13.7 in 2010 (Australian Bureau of Statistics, 2013; see Figure 21). Further, the average gender rate ratio (male-to-female) in the 15-24 years age-group was 3.6 between 2001 and 2010. Another study indicated that the dramatic reduction in the suicide rates of young Australian males aged 20-34 years was dominated by the decrease in suicide by hanging and might also be associated with the 1995 National Youth Suicide Prevention Strategy (NYSPPS) (Morrell et al., 2007).

Figure 21. Suicide rates among 15-24 year olds, Australia, 1964-2010



Data source: Australia Bureau of Statistics, 2013

Similar to Australia, suicide is more common among males aged 15-24 years, than similarly-aged females, in North America, Western Europe, and New Zealand. However, some Asian countries (e.g., Singapore, Republic of Korea) have more equal gender rates, while more females die by suicide in China (Gould et al., 2003; Apter et al., 2009). According to data derived from the Global Burden of Disease Study (World Health Organisation, 2004), globally, suicide was the cause of death for 6% of both sexes aged 10-24 years. In high-income countries, suicide was the second-leading Group III cause of death (which includes traffic accidents, fire-related deaths, drowning, suicide, and violence) in young males and accounted for 15% of mortality (Patton et al., 2009). In contrast, in low/middle-income countries, traffic accidents and violence were the

most prominent Group III causes of death in young males, rather than suicide. However, in these low/middle-income countries, such as those in the American region, there was a nine-fold increase in the recorded suicide rates of young males. In the European, South-east Asian, and Western Pacific regions, suicide accounted for 14%, 8%, and 6% of young male deaths, respectively (Patton et al., 2009). Further, of the ten most common ICD-10 causes of mortality in young people, the incidence of suicide increased for both sexes aged 15-24 years and, overall, was the second most common cause of death (Patton et al., 2009).

Non-fatal suicidal behaviours in young males have also been studied. The WHO/EURO Multicentre Study on Suicidal Behaviour examined rates of non-fatal suicidal behaviour in 25 centres from 19 European countries. Between 1989 and 1992,

rates of non-fatal suicidal behaviour in males aged 15-24 years were lower than corresponding female rates, except in Helsinki (Finland) where male rates were higher (Hawton et al., 1998a). Between 1995 and 1999, a similar phenomenon was demonstrated, except Innsbruck (Austria) had higher rates of non-fatal suicidal behaviour among males aged 15-24 years than females in the same age group (Schmidtke et al., 2004). This study showed that rates of non-fatal suicidal behaviour were strongly associated with suicide in young males, both regionally and nationally (Hawton et al., 1998a). A study in New Zealand demonstrated that the number of male admissions for attempted suicide to the Christchurch Hospital was lower than female admissions during 1993-2002 (Gibb and Beautrais, 2004). Further, there was no significant trend for the number of admissions of males younger than 25 years of age over the period (Gibb and Beautrais, 2004). Importantly, although there are no national data on non-fatal suicidal behaviour in Australia, some states have begun to collect data through hospitals. As previously presented in Chapter 1, the information provided by the Gold Coast Hospital Emergency Department, over the period 2005-2010, showed that the majority of people who presented with non-fatal suicidal incidents were aged 15-24 years. Males in this age group accounted for 26% of the total number of non-fatal suicidal behaviour per year. Older information from Australia shows, that in Perth, the annual rate of attempted suicide was estimated to be 362 per 100,000 for people aged 15-24 years in 1990; a small gender ratio was found at 1.6 females/1 male (Silburn et al., 1991). Similarly, in Victoria, the gender ratio was 1.6/1 for a hospitalised group and 1.7/1 for a non-hospitalised group (Tiller et al., 1997).

Factors related to suicidal behaviours in young males

Suicidal behaviour may be developmentally mediated (Daniel and Goldston, 2009). All over the world, youths aged 15-24 years undergo developmental periods of adolescence and emerging adulthood. During these periods, youths are expected to achieve several age-salient tasks such as: academic success, entry into the workforce, individualism from parents, and the establishment of romantic relationships. Failure in these tasks, especially impaired romantic and parent-child relationships, are often strongly associated with substance abuse and depression in male youths and can subsequently decrease the threshold for suicide (Conner and Goldston, 2007).

A number of studies have examined the risk factors for youth suicide. Youth suicidal behaviours have been correlated with social and educational disadvantage (i.e., low socioeconomic status, low income, poverty, limited educational achievement, difficulties in school), family adversity (i.e., histories of parental separation or divorce, parental psychopathology, impaired parent-child relationships, poor family communication styles, extreme high/low parental expectations and control, parental discord and disharmony, history of physical and/or sexual abuse during childhood, family history of suicidal behaviours), and psychopathology (i.e., depression, substance use disorders, antisocial behaviours) (Doey and Steele, 2007; Gould et al., 2003; Zambon et al., 2010; Portzky et al., 2009; Colucci and Martin, 2007; Beautrais, 2000). Other risk factors for youth suicide are: individual and personal vulnerabilities (i.e., poor interpersonal problem solving, negative self-perception of body weight, low self-esteem,

hopelessness, impulsivity, previous suicide attempt); exposure to stressful life events (i.e., bullying, romantic difficulties, unemployment); and, environmental and contextual factors (i.e., suicide contagion from media and exposure to suicidal behaviours by friends) (Doey and Steele, 2007; Gould et al., 2003; Zambon et al., 2010; Portzky et al., 2009; Colucci and Martin, 2007; Beautrais, 2000; Blakely et al., 2003). However, little research has focused on the protective factors for youth suicide. Studies have revealed that youth might be protected from suicidal behaviours by family cohesion, religion (Gould et al., 2003; Doey and Steele, 2007), self satisfaction (Thatcher et al., 2002), and parents' sense of duty (Eckersley and Dear, 2002).

When comparing these risk factors in terms of gender, sexual abuse was a stronger predictor of attempted suicide in male youths compared to female youths (Choquet et al., 1997; Borowsky et al., 1999). Having a friend who attempted or completed suicide was strongly related to reporting a past suicide attempt for both male and female youth (Borowsky et al., 1999). A study of cultural factors and youth suicide found a strong positive association between male youth suicide and trust in others, self-assessed health, optimism, and individualism (e.g., personal freedom and control) (Eckersley and Dear, 2002). Furthermore, studies have shown that unemployment is strongly associated with suicide among males aged 18-24 years (Blakely et al., 2003). An Australian

study showed a correlation between suicide and unemployment rates over the years 1968 to 2001; a significant positive correlation was shown in young males, but there was a negative correlation for older males and females in general (Berk et al., 2006). The authors of this study indicate the potentially negative impacts of traditional male role expectations on younger age groups. Furthermore, the place of unemployment as a suicide risk factor among young people is also related to other lifestyle risk factors, such as alcohol and drug consumption (Morrell et al., 1998). In addition, an Australian study also found that suicide risk was highest among separated young males aged 15-24 years (Wyder et al., 2009).

Key Messages

- Since 1998, suicide rates in young Australian males aged 15-24 years have decreased dramatically.
- There are no national data on non-fatal suicidal behaviour in Australia. However, based on data available from hospitals, young males have lower rates of non-fatal suicidal behaviour than young females.
- Unemployment and separation from romantic relationships, in combination with mental health disorders, are important factors predicting suicide in young Australian males.

Elderly males

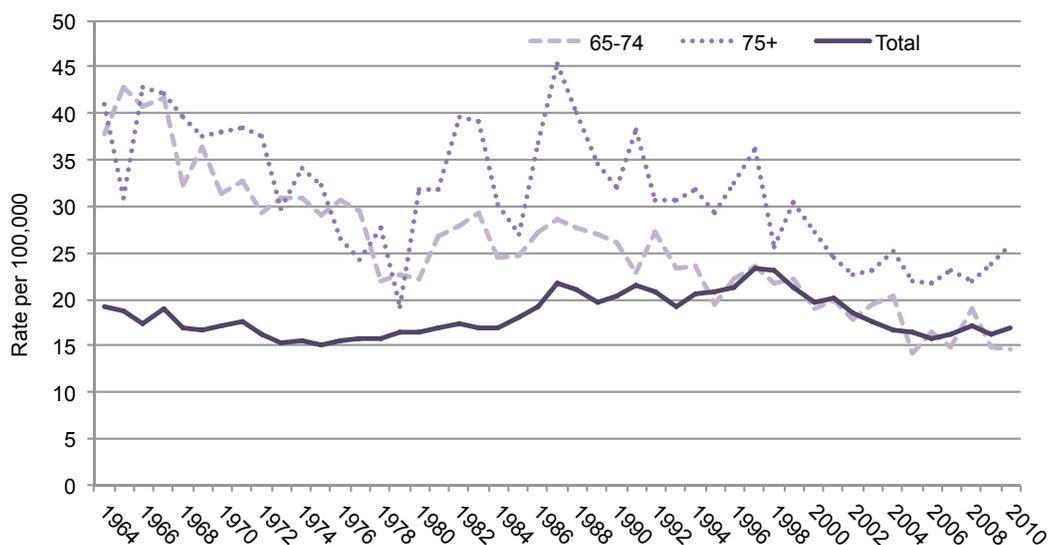
Size of the problem

Despite notable variations in suicide rates across countries (as presented in Chapter 1), suicide mortality among elderly males remains the highest globally. On average, suicide rates increase with age, with the global suicide rate of those aged 75 and older approximately three-times the rate of youth aged 25 years and younger (De Leo et al., 2009).

In Australia, on average, suicide accounts for 0.2% of all deaths among males older than 65 years, compared to 0.6% of all deaths among males aged 25-44 years (Australian Bureau of Statistics, 2011). However, older males represent a much smaller percentage of the total Australian population than young males. Consequently, when these percentages are translated into suicide rates (per 100,000 population), an opposing picture is evident – older males have a significantly greater burden of suicide than their younger counterparts. As seen in Figure 7 of this report, until the early 1990s, suicide rates among elderly males were substantially higher than those among younger

groups. Since then, they have been comparable to the rates seen in younger males. For example, during the period 2001-2010, average suicide rate among Australian males aged 75+ years was 23.4 per 100,000; this rate was exceeded by rates among the 25-34 (25.2) and 35-44 (26.4) age groups.

In recent years, the analysis of suicide among older populations has begun to differentiate between the 'old' and the 'oldest-old' groups as distinctions in trends, associated risk factors, and use of methods have been found (Erlangsen et al., 2003; Moscicki, 1995). However, it should be noted that inconsistencies exist among studies regarding the age which denotes transition to the 'oldest-old' group. This age ranges from 55 (Beautrais, 2002) to 85 years (Rapp et al., 2008). An international comparison of elderly suicide rates, using WHO data, confirmed that suicide rates were higher among both males and females in the age-band 75+ years compared to the 65-74 years age-band (Shah et al., 2007). A similar pattern can be observed in Australia (Figure 22), where the difference between the two age groups has been particularly apparent since the 1980s.

Figure 22. Suicide rates in males aged 65-74 and 75+ years, Australia, 1964-2010

Data source: Australian Bureau of Statistics, 2013

In recent decades, several countries throughout the world have registered a decline in elderly suicide rates, paralleled by an increase in youth and young adult suicide rates (De Leo and Evans, 2004). The decrease has been particularly noticeable in Anglo-Saxon countries, possibly in relation to the increased economic security of the elderly and improvements in psychiatric care (De Leo and Spathonis, 2004). In Australia, Goldney and Harrison (1998) have also proposed several reasons for the reduction in suicide rates specific to older people. First, better social security benefits aid financial security in the transition to retirement. Second, the amelioration of treatments for mental illness, including the provision of better psychiatric services and specialised psychogeriatric units, have occurred along with a reduction in the

prescription of toxic psychotropic medications, especially antidepressants. Third, and finally, they posited that older age groups would experience a diluted protective effect from the rapid influx of migrants from countries with traditionally low suicide rates.

Another widely observed characteristic of elderly suicide rates is the increased gap in the male-female ratio, particularly evident at very advanced old age. Worldwide, the male-female suicide ratio for all ages is around 3/1 (De Leo et al., 2009). However, among those aged 80+ years, the rate ratio can be as high as 12/1, as reported for Italy (De Leo, 1999), or 9/1 as reported for Australia (De Leo and Heller, 2004a).

However, fatal and non-fatal suicidal behaviours exhibit opposite tendencies with respect to age: in most nations, suicide rates peak in the elderly, while rates of non-fatal suicidal behaviour decrease. The WHO/EURO Multicentre Study on Suicidal Behaviour, which included data from 13 European countries between 1989 and 1993, found that, among 22,665 hospital-treated episodes of non-fatal suicidal behaviour, only 9% involved the elderly (65+); in contrast, patients aged 15-34 years accounted for 50% of the total number of episodes (De Leo et al., 2001). Among the elderly, the estimated ratio between fatal and non-fatal suicidal behaviour is approximately 4/1; in young persons, the ratio can reach 200/1 (McIntosh, 1992; Pearson et al., 1997). This ratio in the elderly has been attributed to factors such as greater planning and less impulsivity in suicidal acts, use of more lethal suicide methods, decreased healing abilities, and social isolation (Conwell et al., 2002). An Australian population survey which examined the prevalence of suicidal ideation and attempts found that around 6% of elderly people aged 65 years or older had seriously considered suicide during their life, a percentage approximately half that reported by younger participants (De Leo et al., 2005).

Factors related to suicidal behaviours in elderly males

Suicide in older persons is distinct from other age groups in its characteristics and associated risk factors, be they psychiatric, physical, or psychosocial (De Leo and Arnautovska, 2011). For example, it has been noted that the role of psychiatric diagnoses in suicide changes with age. Conwell and Thompson (2008) found at least one major psychiatric diagnosis in

71% to 95% of elderly suicide deaths, with an affective disorder being present in 54 to 87% of cases (Conwell and Thomson, 2008). Indeed, depressive disorders have been found to be the most reliable predictor of suicidal ideation (Awata et al., 2005), suicide attempt (Tsoh et al., 2005), or completed suicide (Preville et al., 2005) in this age group. In contrast to the younger population, schizophrenia and psychotic disorders are found in a lower proportion of elderly suicides – up to 12% (Harwood and Jacoby, 2000). In addition, to date, the diagnosis of dementia has not been proven to be an independent risk factor for suicide; however, mediating factors between these two phenomena include depression, hopelessness, mild cognitive impairment, preserved insight, and a failure to respond to anti-dementia drugs (Haw et al., 2009).

A New Zealand study by Beautrais (2002) calculated the population attributable risks (PAR) for individual variables associated with suicidal behaviour in the elderly. This study found that mood disorders represented the largest contribution to suicide risk. Elimination of mood disorders could have resulted in a reduction of serious suicidal behaviour among the elderly of up to 74%. In addition, an inadequate social network yielded a PAR of 27%, confirming observations by several other authors (e.g., Hawton and Harriss, 2006; Turvey et al., 2002). The increase in suicide risk attributable to inadequate social support is particularly apparent among elderly widowed or divorced males (Harwood et al., 2000).

While somatic conditions and functional impairments significantly increase the risk of suicide across the whole life-span (Conwell et al., 2002), physical illness as a suicide precipitator

has been most particularly observed in the 'oldest-old' males (Rich et al., 1986). Illnesses found to be independently associated with suicide among males specifically include visual impairment, neurological disease, and various malignancies, most often cancer (Waern et al., 2002). Another age-related precipitating factor for suicide among the elderly is recent placement in a nursing home (Jorm et al., 1995). While suicide is reported to be a relatively rare event in nursing homes (De Leo and Spathonis, 2004), non-fatal suicidal behaviours are common among the elderly in institutionalised care (Draper et al., 2002).

Protective factors against suicide in older males include high levels of education and socioeconomic status, engagement in valued activities, and religious or spiritual involvement (Fiske et al., 2009). Further, the availability of social support, or being part of a community as opposed to living alone, in addition to good physical and mental health (Yen et al., 2005) have been recognised as important protective factors in both genders (Conwell and Thompson, 2008).

Key Messages

- Prior to 1990, suicide rates among elderly males were substantially higher than those among younger males in Australia. Since 1990, the rates have become similar.
- Suicide rates are higher among Australian males aged 75+ years compared to those for males aged 65-74 years.
- Non-fatal suicidal behaviour is less prevalent among Australian elderly males than younger males.
- Major risk factors for suicidality identified in elderly are affective disorders, inadequate social networks, somatic conditions, and functional impairments.

Aboriginal and Torres Strait Islander males

Size of the problem

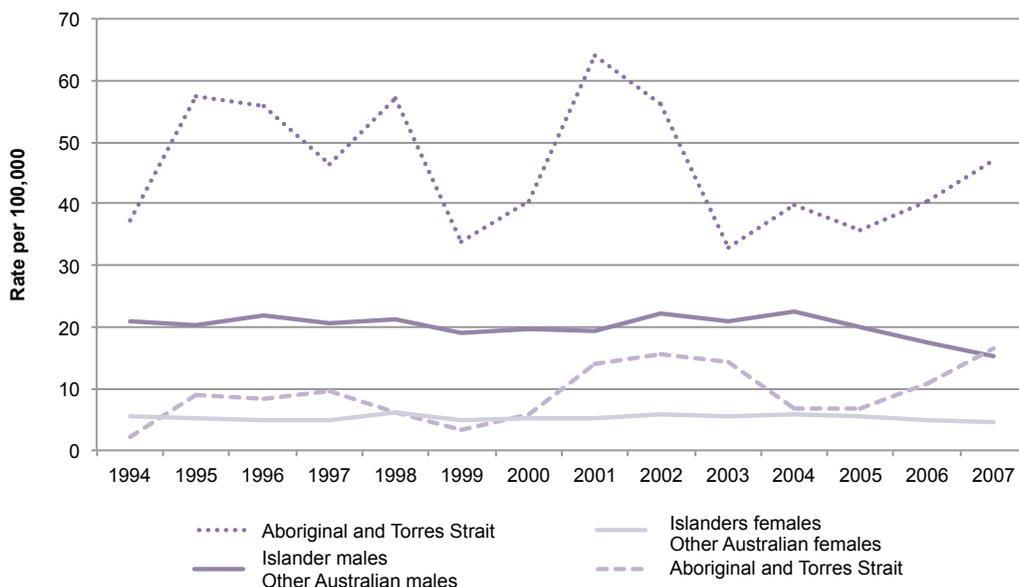
Throughout the world, Indigenous people are reported to die by suicide at a higher rate than non-Indigenous people (Leenaars, 2006; Trovato, 2001). This is also true for the Aboriginal and Torres Strait Islander populations in Australia (Tatz, 2001). However, comprehensive assessments of the scope and characteristics of suicide in Aboriginal and Torres Strait Islander communities remain incomplete due to inaccurate classification systems and incomplete data collection processes (De Leo, 2007; Cantor and Neulinger, 2000; Elliott-Farrelly, 2004; Australian Institute of Health and Welfare, 2008b). Nevertheless, rates of Aboriginal and Torres Strait Islander suicide have been noted to be rising after suicide phenomena in Aboriginal and Torres Strait Islander Peoples were first observed in the 1960s (Hunter and Milroy, 2006).

When presenting statistics on suicide mortality among Aboriginal and Torres Strait Islander Peoples, it should be noted that the Australian Bureau of Statistics only reports Aboriginal and Torres Strait Islander mortality data from those states and territories that have official records with reliable identification of Aboriginal and Torres Strait Islander people. These are Queensland, Western Australia, South Australia, and the Northern Territory. Combining data from these three states and the Northern Territory for the period 1999 to 2003, intentional self-harm represented the leading cause of death from external causes

in Aboriginal and Torres Strait Islander males (accounting for 34% of these deaths), followed by transport accidents (27%), and assault (11%). In Aboriginal and Torres Strait Islander females, intentional self-harm represented the third-leading cause of death from external causes (accounting for 17% of deaths), after transport accidents (31%), and assault (19%) (Australian Institute of Health and Welfare, 2005). The most recent data from the Australian Bureau of Statistics suggest that, in 2009, suicide accounted for 4% of all deaths among the Aboriginal and Torres Strait Islander population (5.6% in males and 2.2% in females). In contrast, suicide accounted for 1.4% of all deaths among the other Australian population (2.2% in males and 0.7% in females) (Australian Bureau of Statistics, 2011).

Because there have been no epidemiological investigations into the exact size of this problem for Australia as a whole, results from a recent publication by De Leo et al. (2011b) on trends in suicide among Aboriginal and Torres Strait Islander Peoples in Queensland are presented for the period 1994-2007 (Figure 23). Over this period, Aboriginal and Torres Strait Islander males and females had significantly higher suicide rates than their other Australian counterparts (2.3 – and 1.8-times, respectively). Aboriginal and Torres Strait Islander suicide rates in males showed considerable fluctuation over the years, ranging from a low of 32.8 per 100,000 in 2002 to a high of 64.1 in 2000. The ratio of male versus female suicide mortality was higher in the Aboriginal and Torres Strait Islander population (4.9/1) than in the other Australian population (3.8/1).

Figure 23. Age-standardised suicide rates by Aboriginal and Torres Strait Islander status, Queensland, 1994-2007



Source: De Leo et al., 2011b, p. 534

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While Aboriginal and Torres Strait Islander and other Australian males have higher rates of suicide deaths, females engage more in non-fatal suicidal behaviour. In 2006-2007, Aboriginal and Torres Strait Islander females had a higher hospitalisation rate for intentional self-harm than Aboriginal and Torres Strait Islander males (3.7 vs. 3.2 per 1000, respectively). Nevertheless, the frequency of Aboriginal and Torres Strait Islander males hospitalised for intentional self-harm remained significantly higher (2.9-times) than that of their other Australian counterparts (Australian Institute of Health and Welfare, 2009).

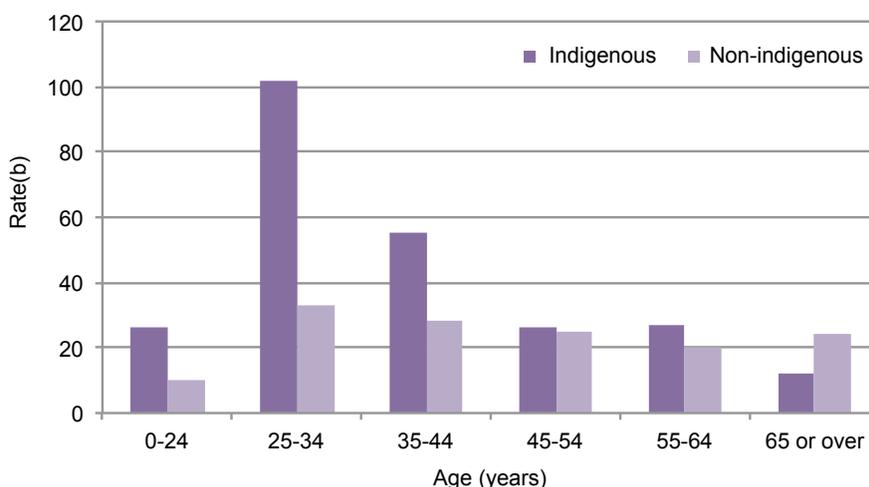
Age distribution and suicide methods by Aboriginal and Torres Strait Islander males

Figure 24 presents suicide rates of Aboriginal and Torres Strait Islander males by age group, in comparison to the rates of their other Australian counterparts. The data are from Queensland, South Australia, Western Australia, and the Northern Territory and are combined for the period 1999-2003 (Australian Institute of Health and Welfare, 2005). During this time, the suicide rate for Aboriginal and Torres Strait Islander males was more than twice that for other Australian males, with the major differences occurring in the younger age groups. For Aboriginal and Torres Strait Islander males younger than 25 years and

aged 25–34 years, the age-specific rates were three times the corresponding age-specific rates for other Australian males. Particularly high suicide

rates were found among 25-34 year old Aboriginal and Torres Strait Islander males (approximately 100 per 100,000).

Figure 24. Male death rates (per 100,000) by Aboriginal and Torres Strait Islander status and age, 1999-2003



Source: Australian Institute of Health and Welfare 2005
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Age-specific suicide rates among Aboriginal and Torres Strait Islander and other Australian males in Queensland for 1994 – 2007 are presented in a recent report by De Leo et al. (2011a) (Table 9). In the Aboriginal and Torres Strait Islander population, the group with the highest risk for suicide were young males aged between 15 and 34 years (a rate in excess of 90 suicide deaths per 100,000). In fact, of all Aboriginal and Torres Strait Islander male suicides in Queensland between

1994 and 2007, 74% were aged 15-34 years; in contrast, this percentage was 38% in other Australian males. Aboriginal and Torres Strait Islander males had a 4-times higher risk of suicide than other Australian males in the 15-24 years age group, and 3-times higher risk in the 25-34 age group. Male Aboriginal and Torres Strait Islander children (younger than 15 years) had a 10-times higher risk of suicide compared to similarly aged other Australian children.

Table 9. Male suicide rates by Aboriginal and Torres Strait Islander status and age group, Queensland, 1994-2007

Age groups	Suicide rate (per 100,000)		Risk Ratio
	Aboriginal and Torres Strait Islander	Other Australian	
5-14	5.57	0.54	10.34
15-24	91.96	22.99	4.00
25-34	99.63	33.02	3.02
35-44	57.80	30.99	1.87
45-54	33.47	25.22	1.33
55-64	9.91	21.44	0.46
65+	14.52	25.72	0.56
Total (ASR)*	45.84	20.05	2.29

Note:*Age-standardised rates by WHO world standard population 2000-2025

Statistically significant risk ratios at level of confidence 95% are highlighted in bold

Data source: Queensland Suicide Register

The great majority of Aboriginal and Torres Strait Islander suicides occur by hanging (Hunter, 1999; Hanssens, 2007). In Queensland, between 1994 and 2007, hanging was used in 87.5% of Aboriginal and Torres Strait Islander male suicide deaths, compared to 39.7% of other Australian male suicides (De Leo et al., 2011a; De Leo et al., 2011b). Consequently, all remaining methods had a very low frequency among Aboriginal and Torres Strait Islander males; for example, 6% died using firearms, 1.6% by motor vehicle carbon monoxide toxicity, and less than 1% by poisoning with solid or liquid substances.

Since the use of any suicide method is strongly influenced by cultural factors (Ajdacic-Gross et al., 2008), the predominant use of hanging

in Aboriginal and Torres Strait Islander suicides has been viewed by some authors as a form of political protest, reflecting their history of colonial oppression (Hunter et al., 1999; Tatz, 2001). In Australia, the recent media portrayals of hangings in custody might have additionally reinforced it as a normalised method of suicide within the Aboriginal and Torres Strait Islander population (Cantor and Neulinger, 2000). Alternatively, it could be argued that the predominant choice of hanging relates to its availability (Cantor and Baume, 1998). While suicide methods such as the use of firearms, overdose of drugs or medicine, or carbon monoxide toxicity need certain prerequisites for their execution, hanging can be acted out in a quick, even impulsive, manner.

Factors related to suicidal behaviours in Aboriginal and Torres Strait Islander males

Aboriginal and Torres Strait Islander suicide, particularly the identification of associated risk and protective factors, has been a relatively neglected area, with research only undertaken within the last 20 years. The following sections consider risk factors which have been identified in the available literature as especially influential.

Worldwide, the underlying causes of suicide within Indigenous populations have been linked to the “enormous social and cultural turmoil created by the policies of colonialism and the difficulties faced ever since by Indigenous peoples in adjusting and integrating into the modern-day societies” (World Health Organization, 2002b, p. 190). In the case of Aboriginal and Torres Strait Islander Peoples, historical marginalisation has resulted in their disconnection from their land and cultural traditions which, to this day, sees Aboriginal and Torres Strait Islander Peoples grossly disadvantaged in terms of health, education, and employment (Hunter and Milroy, 2006; Australian Institute of Health and Welfare, 2008b). In addition, forced displacement from families (Hunter and Milroy, 2006), alcohol and drug abuse (Hanssens, 2007), and sub-standard living conditions (Parker and Ben-Tovim, 2002) have been highlighted as contributing factors to elevated suicide risks among Aboriginal and Torres Strait Islander people.

The 2004-2005 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) found Aboriginal and Torres Strait Islander Peoples to be at a high risk for alcohol abuse. Among males, about 20% reported having risky or high-risk patterns of alcohol consumption (Australian Bureau of Statistics, 2006b). The use of illicit

drugs and substances, such as cannabis and ‘petrol sniffing’, are also important determinants of suicidal processes in Aboriginal and Torres Strait Islander Peoples (Chenhall and Senior, 2009). Some recent evidence suggests that substance abuse exacerbates known suicide risk factors such as depression, violence, child abuse, and antisocial behaviour, weakens an individual’s resilience, and can indirectly precipitate suicide (Fergusson et al., 2009). In line with this hypothesis, Hanssens (2007) found that alcohol was directly implicated in up to 77% of Aboriginal and Torres Strait Islander suicide deaths in a Northern Territory study.

In addition, the NATSIHS study found that more than 21% of Aboriginal and Torres Strait Islander males had experienced a high or very high level of psychological distress in the previous year, a level more than twice that experienced by other Australian males (Australian Bureau of Statistics, 2006b). Yet, only 12% of Aboriginal and Torres Strait Islander people who reported experiencing psychological distress saw a doctor or other health professional, with this percentage particularly low among Aboriginal and Torres Strait Islander males. Several factors have been suggested which may contribute to the under-utilisation of health services by Aboriginal and Torres Strait Islander Peoples, such as: the failure of mental health services to incorporate culturally appropriate practice or acknowledge Aboriginal and Torres Strait Islander holistic conceptualisations of health and well-being (Westerman, 2004); concerns regarding confidentiality in ‘close-knit’ Aboriginal and Torres Strait Islander communities; and, stigma surrounding disclosure of mental health problems and suicidal thoughts (Vicary and Bishop, 2005). While delays in seeking help among men experiencing mental distress have

been commonly attributed to 'traditional masculine behaviour' (Addis and Mahalik, 2003), to date no study has explored these concepts specifically among Aboriginal and Torres Strait Islander males.

Contrary to findings in Western contexts, available studies suggest that mental illness may not be the best predictor of suicide within the Aboriginal and Torres Strait Islander population (Tatz, 2001). Instead, researchers suggest that Aboriginal and Torres Strait Islander suicides are more likely to be a response to situational stressors which, fuelled by alcohol, may make fatal acts look to be more impulsive than other Australian suicides (Hunter and Harvey, 2002). Tatz (2001) further noted that many of the other mainstream social risk factors for suicide do not apply to Aboriginal and Torres Strait Islander people and their communities. He identified the following community factors as being most relevant to explaining increases in suicide: lack of a sense of purpose in life; lack of recognised role models and mentors; disintegration of the family; lack of meaningful support networks within the community; high community rates of sexual assault and drug and alcohol misuse; the persistent cycle of grief due to the high number of deaths within communities; and, poor literacy levels leading to social and economic exclusion and alienation. These factors are likely to have particularly severe consequences on young men who can experience guilt, shame, rejection or despair and, consequently, diminished or absent will to live (Procter, 2005).

Studies have found that Aboriginal and Torres Strait Islander suicides appear to occur in

clusters, and that suicides may share common age groups, genders, and methods (Elliott-Farrelly, 2004). Hanssens (2007) reported that Aboriginal and Torres Strait Islander males appear to be most at risk of contagion or imitation of suicidal behaviours. These appear to produce clusters of suicides in Aboriginal and Torres Strait Islander communities via the 'contagious' spread of several forms of antisocial behaviours, such as criminality, conduct disorder, and alcohol and drug abuse – all of which are well-known catalysts of suicidality among males.

Key Messages

- In Australia, suicide rates among Aboriginal and Torres Strait Islander Peoples are higher than the other Australian population; males have higher rates of suicide while females engage more in non-fatal suicidal behaviour.
- Aboriginal and Torres Strait Islander males aged 25-34 years have the highest rates of suicide.
- Hanging is the most common suicide method among Aboriginal and Torres Strait Islander males in Australia.
- Alcohol and substance abuse, under-utilisation of health services, as well as disadvantages in social and health conditions put Aboriginal and Torres Strait Islander males at high risk of suicide.
- Aboriginal and Torres Strait Islander males are at a high risk of contagion or imitation of suicidal behaviours in their communities.

Males living in rural and remote areas

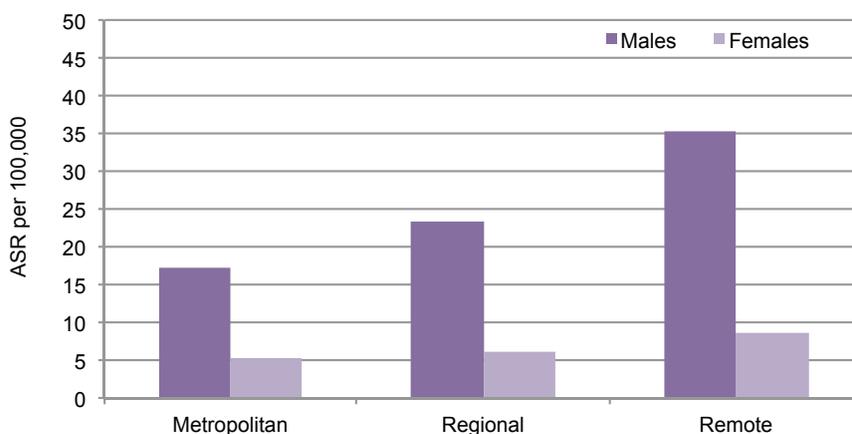
Size of the problem

Australia's rural localities face an increasing burden of death due to suicide (Hirsch, 2006), with adolescents and young males, farmers, and Aboriginal and Torres Strait Islander Peoples having a particularly elevated risk of suicide (Caldwell et al., 2004; Wilkinson and Gunnell, 2000). Evidence also suggests that suicide rates in remote areas of Australia have been increasing over time. For example, past research by Page and colleagues (2007) indicated that the male suicide rate in rural areas increased from 19.2 per 100,000 during 1979-1983 to 23.8 during 1999-2003.

Between 2005 and 2007, data from the Queensland Suicide Register showed that males in remote areas had significantly higher suicide rates (35.3 per 100,000) than males residing in regional (23.4) or metropolitan (17.4) areas (Kölves et al., 2012a; see Figure 25). Moreover, rate ratio of male suicide in rural Queensland was two-times higher than in metropolitan locations (Kölves et al., 2012a).

In recent years, there have been some indications that the most significant increases in male youth suicide have particularly occurred in rural inland towns with populations of less than 4000 people (Judd et al., 2006). While there appears to have been an overall decline in young male suicide during recent decades (see Figure A1 in Appendix of this report), this decrease has not specifically translated to rural areas.

Figure 25. Age-standardised suicide rate in metropolitan, regional and rural areas of Queensland, 2005 to 2007



Source: Kölves et al., 2012a, p. 4; based on data from Queensland Suicide Register

A particularly vulnerable population in rural areas, who are also predominantly male, are farmers. An analysis of all suicides in Queensland between 1990 and 2006 showed that agricultural workers (including farmers, farmhands, and shearers) had a suicide rate of 24.1 per 100,000. This was more than twice the average suicide rate of 10.6 found among the employed population (Andersen et al., 2010). The available literature suggests that stressors unique to agricultural occupations may increase the risk of suicide through negative effects on mental health, such as long work hours, social isolation, an ageing population (i.e., an older workforce within agriculturalists), and climatic variability (Hossain et al., 2008). Farmers have also been found to use firearms as a suicide method at a significantly higher rate than other populations (Page & Fragar, 2002; Page et al., 2002).

Two other populations living in rural or remote areas, in which males also experience elevated risks of suicide, are Aboriginal and Torres Strait Islander Peoples (Caldwell et al., 2004; Hunter, 1991) and migrants (Morell et al., 1999). Suicide among Aboriginal and Torres Strait Islander males was examined in the previous section. A study undertaken in New South Wales indicated that male migrants had a higher suicide rate when they lived in 'non-metropolitan' areas (Morrell et al., 1999). It can be argued that these higher suicide rates relate to a lack of social connectedness and increased social dislocation felt by migrants in small communities, especially if they hailed from non-English-speaking countries.

Factors related to suicidal behaviours in rural and remote areas

Living in a rural area alone is not seen as a suicide risk factor *per se* but, in combination with other unfavourable circumstances, these inhabitants may face an increased vulnerability to suicide (Taylor et al., 2005a). A number of factors have been discussed as possible explanations for the high rate of suicide in rural Australia, such as social isolation, lack of available services, occupational issues related to the farming industry, and stressors related to changing climatic conditions (Hirsch, 2006; Judd et al., 2006; Page and Fragar, 2002; Thacore and Varma, 2000). In addition, relationship breakdowns, legal issues, and physical and mental illnesses are also likely to contribute to the suicidality of rural residents (Alston, 2012). Access to lethal suicide methods, particularly firearms, may also play a role in explaining the higher burden of suicide in rural areas (Klieve et al., 2009a). The problematic use of alcohol and drugs has also been linked to an increased vulnerability to suicide, especially in rural areas where high-risk alcohol consumption is significantly more prevalent than in metropolitan areas (Australian Institute of Health and Welfare, 2008c). It should also be noted that self-medication with alcohol is often used as a coping strategy by rural males (Alston, 2012).

To date, the available literature remains inconsistent as to whether mental illness is less likely to be experienced by people living in rural areas or whether it is simply less diagnosed in these areas (Ellis and Philip, 2010; Taylor et al., 2005b). However, it is clear that rural men seldom seek help for mental distress. This resistance has been related to the traditional rural masculine paradigm, lack of time and lack of access to health

facilities and services (Alston, 2012). There is also a strong stigma attached to a diagnosis of mental illness in rural communities (Bourke, 2003). This means that males may be more likely to seek help from general practitioners, as the help they provide is perceived to be more 'medical' (somatic health related) than 'mental' (mental health related) (Judd et al., 2006).

A comparative analysis of contextual influences on suicide among males in regional and remote areas of Australia found that specific variables related to higher suicide rates were the higher proportion of Aboriginal and Torres Strait Islander persons in the population, the proportion of divorced people, and the proportion of people employed in the agricultural workforce (Milner et al, 2012b). In contrast, higher education and an increase in expenditure on anti-depressants were related to lower male suicide rates in rural and remote areas. The authors suggested that several other contextual factors may have also impacted on male suicidality in rural and remote Australia. These include:

- Climate (e.g., the occurrence of droughts, floods, or cyclones);
- Politics (e.g., regulations which affect sale or trade within agricultural industries);
- Economy (e.g., financial impact of droughts, floods or cyclones); and,
- The impact of mining (e.g., changes brought about by the placement of natural gas pipelines on a farming property).

Key Messages

- Male suicide rates are higher in rural and remote areas of Australia than in metropolitan areas.
- Vulnerable groups in the rural and remote areas include farmers, Aboriginal and Torres Strait Islander Peoples, and migrants.
- Identified suicidal risk factors for rural and remote males include climatic variability, political issues related to the farming industry, economic fluctuations, and the impact of mining.

Male migrants

Size of the problem

In Australia, approximately 25% of all male suicides are men who were born overseas. A recent study conducted in Australia (Ide et al., 2012) analysed suicide rates among male and female first-generation immigrants, from 1974-2006, and compared their rates of suicide with the Australian-born population. The results of this study are presented in Table 10. Throughout the study period, male immigrants from Eastern, Northern, and Western Europe had higher suicide rates compared to the suicide rates of the Australian-born population. Eastern-European males had the highest suicide rates among all Country of Birth groups in Australia. Table 10 also indicates that, since the 1980s, total male immigrant suicide rates were lower than those of Australian-born males. This may be affected by the increasing number of immigrants from Middle Eastern and Asian countries where suicide rates are generally lower than in Australia (World Health Organization, 2010). Although these suicide rates were age-standardised, it is important to keep in mind that the demographic composition of immigrants by their Country of Birth is not representative of their home countries. For example, the age distributions of immigrants from many Asian countries are concentrated in younger – and middle-aged groups, whereas about three-quarters of immigrants from European countries are older than 45 years (Australian Bureau of Statistics, 2008).

Factors related to suicidal behaviours in immigrant males

Migration is a process that requires immigrants to make significant life adjustments due to the considerable changes in their physical, social, cultural, and economic environments (Sharma and Bhugra, 2009). In recent years, particular attention has been placed on possible adverse mental health outcomes experienced by different groups of immigrants (Lindert et al., 2008), including the risk of suicide.

Across the world, studies have generally shown that immigrant suicide rates vary considerably depending upon their Country of Birth. Further, the suicide rates of immigrants tend to reflect the rates of their Country of Birth (Burvill, 1998; De Leo, 2002; Kliever and Ward, 1998; Voracek et al., 2009). As such, these authors tend to agree that immigrants appear to bring both suicide risk and protective factors from their home countries, including religious, traditional, cultural, and specific genetic factors. Similarly, Australian studies have demonstrated that suicide rates are generally higher among immigrants born in countries that have higher suicide rates (notably, Western, Northern, and Eastern European countries) and are lower in immigrant groups from countries with lower suicide rates (including those in Southern Europe, the Middle East, and South-East Asia). Furthermore, immigrants from English-speaking countries, such as the United Kingdom and New Zealand, showed suicide rates slightly higher than, but similar to, the Australian-born population (Burvill, 1998; Hassan, 1995; Burvill et al., 1973; McDonald and Steel, 1997; Whitlock, 1971).

Table 10. Age-standardised male suicide rates by Country of Birth, 1974-2006 (aged 15+ years)

	1974 -1978	1979 -1983	1984 -1988	1989 -1993	1994 -1998	1999 -2003	2004 -2006
Australia	21.9	23.4	26.4	28.3	31.3	28.3	22.7
Other Oceania	*	20.5	26.7	23.2	23.8	26.6	16.3
New Zealand	32.8	30.6	37.3	33.1	38.4	34.0	24.6
United Kingdom and Ireland	22.1	24.4	28.4	28.7	30.1	27.8	22.4
Western Europe	33.2	34.0	37.2	37.3	36.4	29.3	24.2
Northern Europe	56.5	44.2	66.7	41.1	36.9	28.1	21.0
Southern and South-Eastern Europe	15.9	19.2	18.8	19.8	18.4	16.9	15.5
Eastern Europe	42.6	41.0	42.4	43.5	43.2	36.3	35.3
North Africa and Middle East	14.5	14.1	18.6	13.3	13.9	10.8	8.0
Sub-Saharan Africa	17.1	23.0	26.4	29.5	25.2	23.3	13.1
South-East Asia	16.5	18.6	12.3	12.6	12.0	11.9	9.0
North-East Asia	22.6	27.7	21.7	13.5	12.0	12.0	11.9
Southern and Central Asia	18.1	10.3	18.0	13.0	14.2	11.8	8.4
North America	32.8	30.7	33.2	31.9	35.7	26.7	19.0
Central and South America	*	16.8	18.0	10.5	15.1	19.7	11.8
All overseas	22.3	24.2	27.0	24.4	25.1	22.2	16.5
Total	22.5	23.5	26.4	26.9	29.1	25.8	19.7

Note: * Age-standardised suicide rate was not calculated because number of suicide deaths were less than 5

Source: Ide et al., 2012

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McDonald and Steel (1997) examined age-specific immigrant suicide rates in NSW and found that both male and female immigrants aged 65+ years were at an increased risk of suicide, compared to the general community. Living conditions are also important variables which can influence immigrant suicidality. A study conducted by Morell et al. (1999) identified that male immigrants from the United Kingdom, Southern Europe, Northern/Western Europe, the

Middle East, and New Zealand, who lived in non-metropolitan areas in New South Wales, were found to be at a significantly higher risk of suicide, compared to their urban counterparts. On the other hand, female immigrants from Northern and Western Europe living in non-urban areas showed a significantly lower risk of suicide compared to their urban counterparts. Furthermore, low socio-economic status increased the suicide risk among male immigrants from the United Kingdom, New

Zealand, and Asia who lived in urban New South Wales (Taylor et al., 1998). The negative impact of low socioeconomic status was particularly alarming among male immigrants who were born in Asia.

Furthermore, reasons for migration – whether voluntary or involuntary in nature – can influence the development of mental illness and suicidal behaviours. It has been reported that refugees and asylum seekers appear to be particularly vulnerable to negative health outcomes, including risks for fatal and non-fatal suicidal behaviour. Factors particularly reported to increase such risks include pre-migration trauma and longer periods of detention (Green and Eagar, 2010; Robjant et al., 2009, Steel et al., 2004). Further examination of the refugees and asylum seekers who die by suicide in immigration detention/removal centres can be found in the next chapter.

Key Messages

- Australian studies have demonstrated that suicide rates are generally higher among immigrants born in countries that have higher suicide rates (Eastern, Northern, and Western European countries) and they are lower in immigrant groups from countries with lower suicide rates (including those in Southern Europe, the Middle East, and South-East Asia).
- Immigrants seem to bring both suicide risk and protective factors from their home countries, including religious, traditional, cultural, and specific genetic factors.
- Suicidal behaviours among migrants are influenced by factors, such as the reasons for migration, circumstances that preceded it, experiences within the host country, and cultural and biological factors related to the Country of Birth.

Gay and bisexual men

Size of the problem

Estimating reliable suicide risks, and the roles of associated risk factors, for lesbian, gay, bisexual, transgender, and intersex people (LGBTI) remains highly problematic as information on sexual orientation and gender identity are rarely identifiable through existing data collection methods, such as census counts or coronial records. Further, there has been no standardised definition of sexual behaviour and sexual orientation used in different studies. Nevertheless, growing evidence from international literature suggests that LGBT people have an increased risk of mental disorders and suicidal behaviours, including suicide attempts (Silenzio et al., 2007) and completed suicide (Mathy et al., 2011). Mathy et al (2011) reported that Danish men, who were currently or formerly in same-sex domestic partnerships, were eight-times more likely to die by suicide compared to men with histories of heterosexual marriage, and were almost twice as likely to suicide as men who had never married. Additionally, a meta-analysis of all studies conducted between 1966 and 2005, which examined suicide attempts in samples where participants reported their sexual orientation (King et al., 2008), confirmed that bisexuality and homosexuality had stronger associations with lifetime prevalence of suicide attempts in males compared to females.

An Australian study, which compared the experiences of straight and gay young men with depression and suicidality, found no significant differences on the depression subscale. However, gay youth reported experiencing significantly higher levels of suicidal ideation (Nicholas and Howard, 1998). In fact, gay youth were 3.7-times

more likely than straight youth to attempt suicide. On average, gay youth first attempted suicide 4.7 years after becoming sexually interested in men, 2.2 years after self-identifying as gay, 0.8 years before another person found out they were gay, and 0.6 years before they had their first same-sex sexual experience (Nicholas and Howard, 1998).

Another Australian study by Jorm et al. (2002), the first to analyse separately the prevalence of non-fatal suicidal behaviour among gay/lesbian and bisexual individuals compared to heterosexuals, surveyed 4,824 people aged 20-24 years and 40-44 years resident in Canberra. The prevalence of "suicidality" (a five-item scale about suicidal thoughts and behaviours over the previous year) was significantly higher for gay individuals and even higher for bisexual individuals than for heterosexual people in the study.

An online survey by Pitts et al. (2006) included 5,476 gay (52%), lesbian (18%), bisexual (10%), transgendered (1%), and intersex (0.1%) participants from all Australian states and territories (65% male, 35% female). Unfortunately, results were presented only by (majority) gender. However, of males, 15.7% responded that they had felt that they would have been "better off dead" in the previous two weeks.

Factors related to the suicidal behaviours in gay and bisexual men

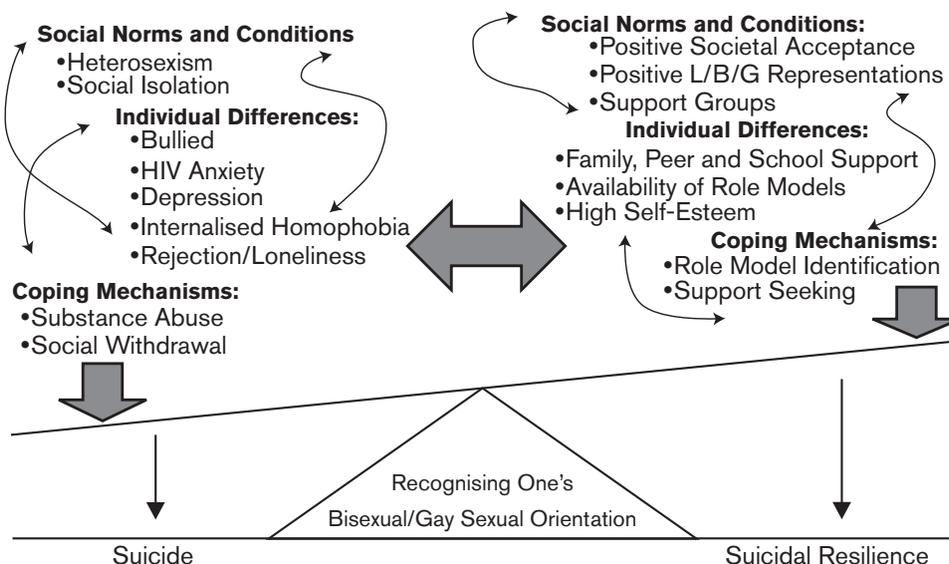
Sexual orientation and gender identity alone do not necessarily elevate risk; rather, experiences of social stress and exclusion, anti-homosexual hatred and violence, institutionalised prejudice, substance misuse, and other sociocultural and economic conditions place LGBT individuals at greater risk of suicide and self-harm (King et al.,

2008; Suicide Prevention Australia, 2009). To date, as summarised by Paul et al. (2002), determinants of suicidality specific to gay and bisexual men have focused on either developmental life transitions (e.g., “coming out” or adopting an identity and sense of community based on one’s sexuality) or social and cultural stressors (e.g., stigmatisation, victimisation, pervasive anti-gay hostility). Both can be seen as having proximal and distal relationships with suicidality, similar to the immediate and long-term consequences of other traumatic events. First, they may provoke emotional distress sufficient to cause youths to contemplate suicide. Second, they may be linked to low self-esteem, substance

abuse, and subsequent mood disorders that increase lifetime vulnerability to suicide. In addition, gay persons living in rural environments may be further impacted by experiences of isolation, strong sentiments of homophobia and related discrimination in small communities, and a lack of access to information on issues surrounding sexual orientation (Quinn, 2003).

Fenaughty and Harre (2003) developed a ‘Seesaw Model of Gay and Bisexual Male Suicide’ presented in Figure 26 that aims to explain the balance between risk and protective factors associated with suicidality in these populations.

Figure 26. The Seesaw Model of Bisexual and Gay Male Suicide



Source: Fenaughty and Harre, 2003, p. 17
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The model includes multi-level factors that interact with each other: societal norms and conditions, individual differences that concern the immediate social context of the young person, and various coping mechanisms (e.g., social withdrawal and substance abuse or role model identification and support seeking). To evaluate the validity of the proposed model, the authors compared groups of gay and bisexual males separated into two dichotomous pairs, attempters and non-attempters, and participants who reported serious thoughts of suicide/suicide plans and those who had not. The results confirmed that the risk of suicidal ideation increased the younger these men had either disclosed their sexual orientation or experienced their first consensual same-sex sexual activity. Victimization at home and at school was also associated with increased suicidality. However, acquiring accurate information on sexuality was found to facilitate resilience and, as such, represented a protective factor against suicide.

Key Messages

- Gay and bisexual males are at elevated risk of suicidal behaviours.
- Australian studies have shown that homosexual males have significantly higher levels of suicide ideation and suicide attempts compared to heterosexual males.
- Stressful experiences resulting from social stigmatisation, substance misuse, and disadvantages in economic conditions are predictive for suicide and self-harm in LGBT individuals, not sexual orientation and gender identity alone.

Separated males

Despite strong evidence suggesting that suicide mortality is higher in the divorced population compared to other marital status groups (Ide et al., 2010), few studies have investigated the experiences of separated people. Those studies have found that separated individuals are at a greater risk of suicide relative to divorced people (Cantor and Slater, 1995; Torre et al., 1999). It has also been demonstrated that, while separated individuals have a higher risk of suicide than any other marital status, in Queensland, the greatest risk of suicide was found among younger males aged 15-24 years (Wyder et al., 2009). Another Australian study showed that separated males had suicide rates two-times higher than divorced males and 6.2-times higher than married males (Cantor and Slater, 1995). In Italy, another study demonstrated that separated males had a five-times higher risk of suicide than divorced males (Torre et al., 1999).

Several studies have reported separation from a partner to be an acute life event associated with suicide (Heikkinen et al., 1992; Kólves et al., 2006b; Kólves et al., 2006c; Rich et al., 1991). A study in Finland conducted psychological autopsy interviews with the long-term partners of people who had died by suicide concerning the significant life events which had occurred in the three months prior to their death (Heikkinen et al., 1992). It was found that separation was the most critical precipitating life event in both male (69%) and female (60%) suicides (Heikkinen et al., 1992).

Similar to the findings on fatal suicidal behaviours, separated individuals have a higher risk of non-fatal suicidal behaviours than divorced persons.

In Norway, it was found that separated males had the highest risk of attempting suicide, followed by single males. Compared to married males, separated males had a 3.4-times higher risk of attempting suicide (Dieserud et al., 2000). In Italy, suicide attempts were six-times more likely to be present among separated males compared with divorced males (Torre et al., 1999). A recent Australian study examined gender differences in suicidality within 18 months of separation. This study found that separated males were at a higher risk of developing suicidal behaviours during the separation process compared to separated females, even after adjusting for age, education, employment, and children being with the separated partner (see Table 11; Kőlves et

al., 2010). Lower education levels, stress from legal negotiations (notably about property/ financial issues), and separation-related shame were predictive for suicidality in separated men (Kőlves et al., 2010). Specifically, separated men were prone to experiencing separation-related shame which might lead to the development of suicidality (Kőlves et al., 2011b). However, a 6-month follow-up analysis of separated males showed a reduction in suicidality, which seems to indicate that individuals adjusted to their new life circumstances (Kőlves et al., 2012b). Nevertheless, persons whose suicidality remained or increased reported more frequently stressful life events, physical and mental illnesses.

Table 11. Risk of suicidal ideation and behaviour among separated males and females

	Separated male		Separated female		Crude OR	95% CI		Adj OR*	95% CI	
	N	%	N	%		L	U		L	U
Felt life was not worth living	146	64.6	69	48.6	1.93	1.26	2.96	1.81	1.14	2.87
Wished I was dead	109	48.2	62	43.7	1.20	0.79	1.83	1.10	0.70	1.75
Thought about taking own life, even if would not really do it	122	54.0	52	36.6	2.03	1.32	3.12	1.95	1.23	3.10
Thought seriously about committing suicide	64	28.3	22	15.5	2.16	1.26	3.69	1.86	1.04	3.32
Made plans for committing suicide	42	18.6	13	9.2	2.27	1.17	4.39	2.06	1.02	4.14
Attempted to take own life	13	5.8	2	1.4	Fisher's exact test = 0.055		--			
None of them in the list	66	29.2	62	43.7	0.53	0.34	0.83	0.59	0.37	0.95

Missing=2 males

*Adjusted OR for age, education, full time employment, having children with previous partner

Results in bold indicate significance level of 0.05

Source: Kőlves et al., 2010, p. 50

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Furthermore, males often have difficulty showing their emotions. They tend to react to stressful events with aggressive and risk-taking behaviours and their passive help-seeking patterns may put them at higher risk of suicidal behaviours (Ide et al., 2010).

Key Messages

- Separated males have a higher risk of suicide than divorced males in Australia, particularly males aged 15-24 years.
- Separation is seen as an important acute life stressor elevating the risk of suicidal behaviours.
- State shame, lower education, and stressful legal negotiations place separated men at a greater risk of suicidality.

Homeless males

While there has been only limited research into suicidality in homeless populations, the available evidence suggests that this population may have suicide rates 3 – to 4-times higher than those in the non-homeless population (Babidge et al., 2001; Bickley et al., 2006; Nordentoft, 2007a). In addition, between 25% and 61% of homeless persons may experience suicide ideation, while up to 34% may attempt suicide (Dietz, 2011; Eynan et al., 2002; Kamieniecki, 2001; Sibthorpe et al., 1995). In 2006, there were an estimated 105,000 homeless persons in Australia, corresponding to a rate of 35 per 10,000 of the population (Chamberlain and MacKenzie, 2008). Approximately 46% of this population were younger than 34 years of age and 56% were male. Australia's homeless population increased from 99,900 in 2001 to 104,676 in 2006 (Chamberlain and MacKenzie, 2008).

Sub-groups of homeless people thought to be particularly at risk of suicide include: younger persons (Gunnell et al., 2009; Noell and Ochs, 2001; Sibthorpe et al., 1995), veterans (Gelberg et al., 1988), lesbian, gay or bisexual individuals (Noell and Ochs, 2001), and the “recently-homeless” (Cleverley and Kidd, 2010; Morrison, 2009). Factors associated with elevated suicide rates in this population include a high prevalence of mental illness and alcohol and drug dependence (O’Shea and O’Reilly, 2000; Scott, 1993). Indeed, chronic mental illnesses have been estimated to be present in 30-50% of homeless persons (Scott, 1993), and an Australian review from a decade ago confirmed that rates of various psychiatric disorders are at least twice as high among homeless youth as in the general

population (Kamieniecki, 2001). These findings are of concern given the well-recognised link between mental disorders and suicide (Bertolote et al., 2004; Desai et al., 2003). Studies in Europe and America suggest the risk of suicide in homeless persons is likely to be compounded by a range of past and present experiences, such as child trauma and abuse (Crews, 2001; McCrone et al., 2005; Nordentoft and Wandall-Holm, 2003; Unger et al., 1998), parental criminality, mental illness, and violence (Cerel et al., 2008; Kidd, 2006; Votta and Manion, 2004). Adverse life circumstances such as limited income, legal problems, and social isolation represent additional stressors that increase vulnerability to suicide (Dietz, 2011; Gunnell et al., 2009). This is additionally accentuated by the use of risky and destructive lifestyle choices, such as drugs and alcohol use (Cerel et al., 2008; Sibthorpe et al., 1995; Votta and Manion, 2004). Only a few studies to date have explored potential protective factors, such as the perception of personal resilience indicated by adaptability to change and a sense of purpose (Cleverley and Kidd, 2011).

Despite the high risk of suicide (reported both in Australia and elsewhere), there remains a lack of research about suicidality in homeless persons. This may be due to the transient nature of the population, which makes studies of homeless persons particularly difficult. Studies to date that have addressed the problem of suicidality in homeless persons have been conducted using specific subgroups (e.g., by age or geographical

location), rather than the general population of homeless persons. The limited number of studies assessing suicidality in the total homeless population (in Australia and elsewhere) may also be explained by the complex and dynamic nature of homelessness, which alters depending on individual circumstances and over time. This represents a problem in terms of the design and implementation of targeted and empirically driven prevention strategies which seek to address the specific risk factors for suicide within the homeless population.

Key messages

- Available evidence suggests that the homeless population may have suicide rates 3 to 4-times higher than those in the non-homeless population.
- There are multiple factors that may increase the risk of suicide in the homeless, including mental illness and alcohol and drug dependence. These risks are likely to be compounded by a range of past and present experiences, such as child trauma and abuse. Adverse life circumstances such as limited income, legal problems, and social isolation may also impact on suicidality.
- There needs to be more research on suicide in the homeless population of Australia.

Males bereaved by suicide

Males bereaved by suicide may include close family members, relatives, and friends of the suicide victim. As a consequence of the suicide death, these 'survivors' often experience great emotional and social difficulties (Baro et al., 2009; Sveen and Walby, 2007). It has been estimated that each suicide death intimately affects at least six survivors (McIntosh, 1996; Shneidman, 1972; Wong et al., 2007). Based on this estimate, and the number of suicide deaths from the Australian Bureau of Statistics (2011) about 2000 suicide deaths per year in Australia), there are approximately 12,000 suicide survivors every year.

It has been argued that suicide survivors are likely to develop complicated grief (i.e., severe long-term reactions to loss by suicide). Suicide grief is unique in terms of its duration and intensity (Brent et al., 2009; Lindqvist et al., 2008; Dunne and Dunne-Maxim, 2009; McMenamy et al., 2008). Suicide survivors not only experience common bereavement emotions such as sadness, guilt, and anger; they may also experience a heightened sense of responsibility, rejection, shame, self-blame and painful recurring thoughts as they try to make sense of the deceased's motives (Dunne and Dunne-Maxim, 2009; Lindqvist et al., 2008; Sveen and Walby, 2007; Murphy et al., 2003; Grad and Zavasnik, 1999). Nevertheless, the reactions of suicide survivors are strongly determined by the quality and characteristics of the relationship between the survivor and deceased and the vulnerability or resilience of the survivor (Sakinofsky, 2007a; Tall et al., 2008). Retrospective and prospective studies have revealed that survivors of suicide are at risk of: depression (McMenamy et al., 2008; Brent and

Melhem, 2008); Post-Traumatic Stress Disorder (PTSD) (Dyregrov et al., 2003); high levels of anxiety (Cerel et al., 1999); increased alcohol consumption (Brent et al., 2009); and, developing suicidal behaviours (Jordan, 2001; Avrami, 2005).

Individuals bereaved by suicide are often confronted by social stigma. Survivors of suicide can be viewed more negatively by others in their social network (Bailey et al., 1999; Jordan, 2001). Further, the stigma associated with suicide can be reflected within survivors (Dunn and Morrishvidners, 1987; Range and Calhoun, 1990). This self-stigmatisation may influence survivors to hide the cause of their loved one's death (Range and Calhoun, 1990; Mcniel, 1988) and withdraw from their social network (Seguin et al., 1995). A few studies have indicated that the stigmatisation experienced by survivors can greatly complicate their bereavement experiences which may contribute to the development of depression and suicidal thinking (Feigelman et al., 2009; Cvinar, 2005).

Further, the ways in which male survivors react to, and the consequent impacts of, the suicide might be different to those of female survivors. Literature about bereavement indicates that men and women cope differently with grief due to their social gender role expectations. However, this idea still lacks empirical support (Murphy et al., 2002). Also potentially related to these different coping mechanisms are the gendered differences in health consequences. There is some empirical evidence to suggest that widowers tend to have more adverse health effects than widows during the acute grieving period (Stroebe, 1998; Stroebe et al., 2001). Widowers seem to have a higher risk of mental and physical illnesses and mortality and,

more specifically, suicide (Stroebe, 1998; Stroebe et al., 2001; Li, 1995).

Parents who lose a child by suicide are at risk of developing Posttraumatic Stress Disorder (PTSD) and depression (Brent et al., 2009; Murphy et al., 1999). One study analysed the differences in parental reactions to a child's death in 35 couples, including five who lost their child to suicide. Using the Grief Inventory, it found that mothers demonstrated more intense grief than fathers (Schwab, 1996). However, young survivors (children and adolescents), whose parent(s) had died by suicide, showed more enduring effects of this parental bereavement and a vulnerability to developing complicated grief as a prolonged negative affect (Brent et al., 2009; Avrami, 2005). There is no research on gender differences in children and adolescents who have lost their loved ones by suicide. However, a review of child bereavement by Dowdney (2000) suggests that bereaved boys tend to externalise their problems and have more psychological difficulties, with more aggressive and acting-out behaviours compared to bereaved girls. In contrast, girls exhibit more internalising symptoms.

Consequently, there is only limited empirical evidence about gender differences in the grieving process and it has not been analysed among suicide survivors. As males often have difficulties in expressing their emotions and seeking help (for more details see Chapter 6), the impacts of suicide on male suicide survivors needs special attention.

Key Messages

- Suicide survivors often experience a heightened sense of responsibility, rejection, shame, and painful recurring thoughts, in addition to the common bereavement reactions, as they try to make sense of the deceased's motives.
- Social stigma attached to suicide may significantly complicate bereavement experiences.
- Survivors of suicide are at risk of depression, PTSD, high levels of anxiety, increased alcohol consumption, and developing suicidal behaviours.
- Widowers may have a higher risk of mental and physical illnesses and mortality, more specifically suicide.

Chapter 4

Male suicides in different settings

Lay San Too, Kairi Kõlves and Diego De Leo

The prevalence of suicides varies among different settings and, indeed, the factors which affect suicides in these different settings are distinct. These variations may be explained by the significant differences between the myriad environments in which people are involved, and the unique stressors to which they are consequently exposed. Physical environmental factors have been shown to be correlated with suicide (Lieberman et al., 2004), including non-conductive environmental conditions, exposure to suicide incidents, access to means, and the use of structural hazards as a means for suicide. This chapter contextualises the experiences of male suicides in different settings such as the workplace, military, prison and remand centres, hospitals, and immigration detention/removal centres.

Workplace

Work is a vital part of human life. It is especially important for men who live in cultures where they are perceived to have sole financial responsibility for their family and work is consequently constructed as essential to the masculine role. Work is a gateway to many rewards and provides ties between individuals and society (Makinen and Wasserman, 2009). Indeed, all men are connected to the labour market in a direct or indirect way (Makinen and Wasserman, 2009). Apart from economic subsistence and work status (e.g., employed, unemployed, retired, disability pension), several work-relevant variables inside the labour market have also been shown to profoundly influence a worker's life conditions and wellbeing. The impacts of work position, occupation, and work environment on male suicides will be discussed below.

Occupational status and social class

The positions of individuals within the labour market not only determines the physical environment in which they will mostly spend their days, but also the kinds of stresses they may be exposed to and the social environments in which they are involved (Makinen and Wasserman, 2009). These factors can greatly affect an individual's mental health (Makinen and Wasserman, 2009), especially those who work after hours or during the weekend. An individual's position within the labour market is always seen as a strong social marker and can subsequently determine their social class. Indeed, social class is a clear indicator for suicide among men in contemporary industrialised countries (Makinen and Wasserman, 2009). Compared to men with high income or high education, men with low income or low education were prone to have

a higher risk of suicide (Blakely et al., 2002; Qin et al., 2003; Denney et al., 2009; Kalediene et al., 2006). Maki and Martikainen (2007) studied the socioeconomic differences among Finnish people aged 25 years and older between 1971 and 2000. They found that the suicide rates of male manual workers were approximately double the rates of male non-manual workers. They also indicated that, between 1991 and 2000, the class difference in male suicide mortality was 0.6 years and this contributed 10% to the general difference in life expectancy between manual workers professionals, semiprofessionals, and managers (Maki and Martikainen, 2007).

Although these studies have evidenced the relationship between social class and suicide in men, the results must be interpreted carefully. Class inequalities are often closely intertwined with other suicide risk factors; for example, a higher risk for divorce among lower-class men (Makinen and Wasserman, 2009), and separation or health problems as a result of the disadvantages attached to their position. Cultural aspects connected to men and social class have to also be taken into account to understand the relationship between class and male suicide. Specific ways of thinking and behaving may be associated with certain classes and these can also vary among different societies and countries (Makinen and Wasserman, 2009).

Occupation type

Different occupations have been shown to be variously associated with suicide. Four explanations have been proposed for the relationships between occupation and male

suicide (Makinen and Wasserman, 2009). First, stressful situations are regularly or permanently encountered in certain occupations. Second, some occupations provide both knowledge of a particular means of suicide and provide privileged access to it, such as doctors, agricultural workers, police or military personnel. Third, people may be selected for occupations as they possess character traits that are essential/desirable for the particular work but are also associated with suicide. Fourth, certain occupations are exposed to some circumstances that may generate suicide. Indeed, as described earlier, male-dominant occupations, such as agriculture, construction, and labouring may have higher suicide rates because of the increased risk for suicide run by males.

The relationships between male suicide and occupation seem to differ internationally. Nevertheless, some similarities are shared among different nations. As shown in a study performed in New South Wales between 1985 and 1991 (Burnley, 1995), suicide rates were highest in male farmers and related workers. This was especially evident among those aged 25-39 years, with the most common methods being firearms and explosives. Male suicide rates were next highest among transport workers, production workers, and labourers; male miners and quarrymen had the lowest suicide rates. Similar findings were reported in a more recent study conducted for the period 1990-2006 for Queenslanders, aged 15-64 years (Andersen et al., 2010). Males working in the agricultural, transport, and construction sectors had significantly higher suicide risk than the employed population in general (Table 12).

Table 12. Suicide incidence and rates per 100,000 in Queensland in population aged 15-64 years, 1990-2006

	Persons				Male				Female			
	Suicide incidence ^a	Suicide rate ^b	RR	95% CI	Suicide incidence ^a	Suicide rate ^b	RR	95% CI	Suicide incidence ^a	Suicide rate ^b	RR	95% CI
Construction	317	18.6	1.76*	1.56-1.97	317	19.0	1.14*	1.01-1.28	0	-	-	-
Transport	161	19.1	1.80*	1.52-2.05	159	20.4	1.23*	1.04-1.44	2	-	-	-
Agriculture	206	24.1	2.20*	1.93-2.51	194	32.3	1.94*	1.69-2.24	12	4.7	1.49	0.84-2.46
Artists	40	12.8	1.21	0.89-1.66	30	16.1	0.97	0.68-1.39	10	8.0	2.49*	1.33-4.67
Cleaners	78	10.8	1.02	0.81-1.27	57	21.7	1.30*	1.00-1.70	21	4.6	1.43	0.92-2.21
Education professionals	73	5.2	0.49*	0.39-0.62	52	13.2	0.79	0.60-1.04	21	2.1	0.66	0.42-1.02
Nurses	52	9.0	0.85	0.64-1.11	12	23.7	1.43	0.81-2.51	40	7.6	2.37*	1.71-3.28
Employed population	3,010	10.6	1		2,602	16.6	1		408	3.2	1	
Total population	7,652	18.5	1.75*	1.68-1.83	6,087	29.6	1.78*	1.70-1.86	1,565	7.6	2.37*	2.13-2.63

RR, rate ratio; CI, confidence interval. ^aQSR 1990-2006; ^brates calculated using Australian Bureau of Statistics data for 2001. Employed population has been used as a reference category for rate ratios. *p < 0.05.

Source: Andersen et al., 2010, p. 246

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A study in England and Wales identified occupations with higher suicide rates during 2001-2005 (Meltzer et al., 2008). Among men aged 20-64 years, construction workers and plant and machine operatives had the greatest number of suicides; however, health professionals and agricultural workers had the highest proportional mortality ratios (PMRs). In Scotland, between 1981 and 1999, increased PMRs were found among men who engaged in low-paying occupations (i.e., labourers). Male farmers, forestry workers, fishermen, ships' crewmembers, counter hands and assistants, and chefs and cooks also had elevated PMRs (Stark et al., 2006). A recent New Zealand study, conducted over the period 1973-2004, showed that standardised mortality ratios were elevated for male nurses, hunters, and cullers, while male police and armed forces were at a lower risk (Skegg et al., 2010).

Occupation also seems to determine the means of suicide. Skegg and colleagues (2010) pointed out that, given their familiarity with and easier access to drugs, nurses, doctors and pharmacists were 3-to 5-times more likely to use drug poisoning than were people employed in other industries. Similarly, in Scotland, medical practitioners (in the 16-45 years and 46-64 years age groups) and hospital ward orderlies (in the 16-45 years age group) who had access to lethal means of suicide showed high PMRs (Stark et al., 2006). Danish studies have also revealed that an increased use of self-poisoning influenced the higher risk of suicide associated with doctors and nurses (Agerbo et al., 2007; Hawton et al., 2011). Further, farmers, hunters, and cullers were more than twice as likely to use firearms to commit suicide compared to all other occupations (Skegg et al., 2010). Mustard and colleagues (2010) indicated that

greater access to means, or potential exposure to neurologically toxic agents, may put workers at higher risk for suicide.

A Finnish study found that the seasonality of suicide rates in different occupations occurred predominantly with male workers (Koskinen et al., 2002). In this study, farmer suicides peaked in the spring; forest workers peaked in the winter; and indoor workers had a significant peak during summer. However, although seasonality may be an interesting factor related to occupational suicides among men who work in the agricultural sectors, little research has been conducted on this.

Overall, the association of male suicides with occupation varies between nations. However, in general, male agricultural and construction workers, as well as health professionals, appear to be at a higher risk for suicide compared to other occupations. Knowledge of, and access to, suicide means are associated with the chosen suicide method in some occupations, such as health professionals and agricultural workers. Although Mustard and colleagues (2010) emphasised that restricting and limiting access to lethal means in the workplace has been proven to be effective, and so should be continued, this initiative might not be feasible in all occupations. Instead, efforts to reduce the stresses resulting from the occupational and work environments could be implemented to prevent male suicidal behaviours.

Work environment

The work environment is generally perceived to be a more active influence on suicide than class and occupation as it has a more direct effect on an individual's life. Occupational stress, recent or previous work injury, workplace bullying, style

of conflict resolution, and job insecurity have been shown to contribute to suicidal behaviours (Chastang et al., 1998; Hyde et al., 2006; Ozanne-Smith and Routley, 2010). An Australian survey indicated that poor quality jobs, with three or more psychosocial stressors (characterised by perceived job insecurity, low marketability and job strain), could result in negative health impacts similar to being unemployed (Broom et al., 2006).

In a Japanese study on work-related suicide cases (Amagasa et al., 2005), 21 of the 22 cases studied were men. Long work hours and heavy workloads significantly predicted suicide and this relationship might have been mediated by mental health problems, notably depression. Similarly, another study revealed that the prevalence of suicidal ideation increased with the number of hours worked on the afternoon shift among policemen with symptoms of PTSD (Violanti et al., 2008). A low level of control at work was found to correlate with suicide mortality among Japanese male workers in a study by Tsutsumi et al. (2007). Other work-related variables that contributed to suicide were personnel changes (i.e., transfer or promotion), low decision latitude, high psychological demand, and low social support in the workplace (Amagasa et al., 2005). The latter three variables were found to be predictive of depressive symptoms in men (Niedhammer et al., 1998). This may indicate that these work-related variables were indirect causes of suicide but depression may have also contributed to the factors that led to suicide.

Parents' work conditions have been found to affect suicides among their children. One study examined the trans-generational impact of parental working

conditions on attempted or completed suicides among their children during the first 16 years of life (Aleck et al., 2006). This study was undertaken among Canadian sawmill workers and revealed a strong association between the fathers' adverse work conditions and attempted or completed suicide among their children. Male children, whose fathers had low durations of employment, had a greater propensity for attempting suicide while male children whose fathers' job required low psychological demand had a higher propensity for completing suicide. More recently, Kólves (2010) indicated that child suicide might be associated with changes in the family environment connected to economic crises, such as parental unemployment and subsequent decrease in income, changes in parental behaviours as a result of job loss, and parental job migration.

Key Messages

- Social class at work predicts suicidal behaviours; lower class men are at a higher risk of suicide than higher class men.
- Male suicide rates are higher among agricultural, transport, and construction-related occupations in Australia.
- Long working hours, heavy workloads, personnel changes, low decision latitude, high psychological demand, and low social support at the workplace are predictive of male suicide but these relationships may be mediated by depression.
- Parent's adverse work conditions and subsequent changes in family environment may influence suicidal behaviours among male children.

Military

Military service is still regarded as a predominantly male profession despite the growing number of female soldiers. In general, suicide is less prevalent among military units than in civilian populations (Rozanov et al., 2009; Skegg et al., 2010). This phenomenon has been found in military units based in European countries such as France (Desjeux et al., 2004), the United Kingdom (Defence Analytical Services and Advice, 2007), Ireland (Mahon et al., 2005), Finland (Marttunen et al., 1997), and Italy (Mancinelli et al., 2003, Mancinelli et al., 2001), as well as the United States (Eaton et al., 2006), Canada (Zamorski, 2011), and Australia (Gisler and Sadler, 2000; Hadfield and Sheffield, 2009). The lower rates are usually explained in terms of the existence of common protective factors in the military environment. These include: the highly organised structure of the military, preliminary and on-going control of medical and mental conditions throughout the appointment, early identification of suicidal persons along with referral to specialists, discharge of suicidal persons, and the thorough investigation of every case of attempted or completed suicide which provides important information for further prevention (Rozanov et al., 2002). However, the recent 2010 Australian Defence Force (ADF) Mental Health Prevalence and Wellbeing Study Report (McFarlane et al., 2011) showed that ADF personnel had a higher proportion of suicidality (defined here as thinking of committing suicide and making a suicide plan), compared to the Australian community sample. This was based on the 2007 National Survey of Mental Health and Wellbeing. Yet, the actual number of suicide attempts was not significantly higher when compared to the Australian community.

Firearms are the most common suicide method used by military personnel in most countries (Desjeux et al., 2004; Mahon et al., 2005). However, in the ADF, hanging is still the most common method (Gisler and Sadler, 2000; Hadfield and Sheffield, 2009). Suicide rates also vary among different types of military units and are affected by the level of involvement in various types of military operations. According to the ADF statistics, the risk of suicide is lowest in the Air Force, followed by the Army and highest in the Navy (Gisler and Sadler, 2000; Hadfield and Sheffield, 2009). Rozanov and colleagues (2009) delineated several common risk factors for suicide in the military. These are: the loss of, or lack of, personal freedom; aggressive masculine culture; the risk of exposure to personal traumatic stress and subsequent traumatic stress reactions; easy access to firearms; low supportive social structures resulting from the military lifestyle with its frequent relocations; the profound changes in social structures as a result of downsizing and reorganising processes; and the danger of suicide contagion and clusters. Additionally, combat exposure and training may lead to the fear of painful experiences, including suicide, being normalised and as a consequence military personnel may acquire the capability to suicide (Selby et al., 2010).

Conscripts

Previous research has found that young conscripts may have an increased risk of suicide (Rozanov et al., 2009). Several psychological dimensions have been linked with this increased risk. Specifically, a weak sense of coherence, which is related to resilience and coping, was strongly predictive of suicidality among male conscripts in Norway

(Mehlum, 1998). Consistently, within a sample of 1098 young conscripts in Greece, those who experienced suicidal ideation or behaviour had a significantly lower sense of coherence (Giotakos, 2003). Further, in a Finnish study (Ristkari et al., 2005), conscripts who committed suicide had an impaired sense of coherence. Mental health problems, and alcohol and drug abuse, were also associated with a low sense of coherence.

Other identified risk factors for suicidal behaviour in male conscripts were low intelligence test scores (Gunnell et al., 2005b), short stature, poor psychological performance in logic tests (Jiang et al., 1999), poor performance in military service (Farbstein et al., 2002), and low body mass index (Magnusson et al., 2006). An Australian cohort study indicated that conscript suicide could be predicted from lower intelligence test scores, absence of post-school education, reports of being 'absent without leave' (AWOL) during service, and a history of diagnosis and treatment of psychological problems which were not linked to service in Vietnam (O'Toole and Cantor, 1995). Rozanov and colleagues (2009) indicated that mental disorders, an accumulation of negative life events, hopelessness, and emotional pain were equally-important risk factors for both soldiers and the general population. Young soldiers were also more vulnerable to negative life events which could possibly have resulted from limited social support in such a closed military system (Mehlum and Schwebs, 2001).

Veterans and deployment

Apart from young conscripts, veterans also have an increased risk of suicide (Rozanov et al., 2009). As reported by Kaplan and colleagues (2007), the prevalence of suicide was twice as likely among

male veterans relative to the non-veterans within the general population of the US. The use of a firearm was 1.3-times more likely in male veterans than non-veterans. Both suicide rates and suicides using a firearm were particularly evident among younger male veterans (Kaplan et al., 2009). Other predictive factors for veteran suicide were being Caucasian, with 12+ years of education, and impaired functional status (Kaplan et al., 2007). An Australian study analysing veteran suicides, using the psychological autopsy method, demonstrated that the most frequent problems experienced by veterans who suicided were alcohol and drug abuse, relationship problems, mental illness such as PTSD, employment, bereavement due to suicide among their fellow soldiers, and problems with help-seeking (McKay et al., 2010).

A longitudinal study of male Vietnam veterans in the US showed that PTSD, drug dependence, and suicidality, persisted over time (Price et al., 2004). Among homeless veterans, combat exposure, substance abuse, and combat-related PTSD were stronger predictors of suicidal thoughts and attempts in males than females (Benda, 2005). Compared to veterans with other mental disorders, veterans with PTSD were also found to be more suicidal (Begic and Jokic-Begic, 2001), four-times more likely to have owned firearms, and have a higher risk of firearm-related violence (Freeman et al., 2003). As well as PTSD, gambling addiction was also associated with suicide attempts in veterans (Kausch, 2003).

Another important factor that may increase suicide risk is deployment. Operation Iraqi Freedom Mental Health Advisory Team (2003) revealed that suicide rates in the US Army were dramatically impacted by the Iraq War in 2003, where the army

was exposed to higher combat stress. Suicide rates had not been impacted in this way by the 1991 Iraq War or the Afghanistan missions. As with suicides, a significantly higher prevalence of PTSD and other mental disorders, including major depression and generalised anxiety disorder, were detected in the army after duty in Iraq, when compared to post duty in Afghanistan or before deployment to Iraq. This discrepancy was most evident in the prevalence of PTSD (Operation Iraqi Freedom Mental Health Advisory Team, 2003). In addition, rates of PTSD have been found to be higher in army and marine contingents (approximately 12.5 %; see Hoge et al., 2004) compared to the estimated lifetime PTSD prevalence among the adult American population (7.8 %; see Rozanov et al., 2009).

Peacekeepers

Peacekeeping soldiers have a different task to that of soldiers who are trained for combat. Peacekeepers are not expected to engage in regular war activities, but act as buffers between hostile parties to create conditions of lasting peace for countries. However, peacekeepers may suffer substantial tension and psycho-emotional problems arising from various conflicts and issues (Rozanov et al., 2009). Thoresen and colleagues (2003) reported that male Norwegian former peacekeepers had a significantly elevated risk of suicide using firearms and carbon monoxide poisoning. This suicide risk was associated with lower marriage rates among the peacekeepers compared to the general population (Thoresen et al., 2003). A psychological autopsy study, which examined male Norwegian peacekeeping veterans

from 1978 to 1995, indicated that mental health problems were the most predictive risk factor for suicide (Thoresen and Mehlum, 2006). Other contributing factors for suicide included living alone and the break-up of a romantic relationship. No unique peacekeeping-related factors were associated with suicide. On the other hand, a Canadian study revealed that UN peacekeepers were not at a higher risk for suicide (Wong et al., 2001). Overall, it appears that the military lifestyle may strain interpersonal relationships and contribute to psychiatric illnesses among peacekeepers. Suicide in this particular group may also vary depending upon the nature of the mission and the cultural and social contexts of the countries in which it is pursued.

Key Messages

- While suicides in the military are less common than in civilian populations, a higher risk of suicide has been found in conscripts, veterans, and members with deployment experience.
- Suicides among Australian conscripts were associated with lower intelligence, absence of post-school education, being 'absent without leave' (AWOL) during service, and previous diagnosis and treatment of psychological problems.
- Australian veterans who died by suicide most frequently experienced alcohol and drug abuse, PTSD, relationship problems, employment, bereavement of fellow soldiers' suicide, and problematic help seeking.

Prisons and remand centres

Suicide is one of the most common causes of death in correctional settings (World Health Organization, 2007), including in Australia (Lyneham et al., 2010). People who are incarcerated have a substantially higher risk of suicide compared to the general population. Incarceration itself is stressful and can lead to increased suicidality, particularly among already vulnerable inmates (Bonner, 2006). Further, correctional settings differ in terms of socio-cultural conditions, prevalence of mental disorders, levels of stress (Liebling, 2006), sentencing practices, overcrowding (Huey and McNulty, 2005), opportunity for purposeful activities (Leese et al., 2006), access to health or mental health services (Konrad et al., 2007), inmate population, and prison environment. These factors appear to affect suicide rates in different ways and may vary among different countries. Prison suicides can negatively affect prison officers, psycho-medical staff, fellow prisoners, and their relatives and partners (Kerkhof and Blaauw, 2009).

In a recent study on suicide rates among prisoners from 12 countries (Australia, Belgium, Canada, Denmark, England and Wales, Finland, Ireland, Netherlands, New Zealand, Norway, Scotland, and Sweden) between 2003 and 2007, 810 of 861 prison suicides were men (Fazel et al., 2011). Suicide rates among male prisoners were at least three-times greater than rates among the general population. However, the prevalence of suicide among male prisoners was not associated with the suicide rates in the general population or rates of incarceration. In this study, male prisoner suicide rates of above 100 per 100,000 prisoners were found in the European countries (i.e., Belgium,

Denmark, England and Wales, Netherlands, Norway, Scotland and Sweden), which was higher than the rates found in Australia, Canada, and New Zealand. Specifically in Australia, rates of male prisoner suicide were 58 per 100,000 compared to 16 per 100,000 in the general population. These findings indicate that male prisoners in Australia experience a high risk of suicide than the general population, but a risk lower than in European countries. Furthermore, suicide is one of the most common cause of death in male and female prisoners since mid 1990s (Lyneham et al., 2010).

A recent systematic review of suicide risk factors among prisoners included 34 studies (Fazel et al., 2008). This review indicated that being white, male, and married were associated with prison suicide. Other important predictors included criminological factors – single cell occupation, detainee/remand status, and serving a life sentence – and clinical factors – recent suicidal ideation, history of attempted suicide, current psychiatric diagnosis, receipt of psychotropic medication, and history of alcohol use problems (Fazel et al., 2008).

Another Australian study on adolescents in a youth remand centre in Perth, showed that all suicide attempters between July 1987 and June 1989 were male juveniles (Lawlor and Kosky, 1992). Additionally, most of these suicide attempters were over 16 years of age and non-Aboriginal. A history of foster/institutional care, serious violent offences, previous psychiatrist visit, previous suicide attempt, and being held in custody for more than seven days were risk factors for a suicide attempt among adolescents in custody. The most common suicide methods used were hanging and self-strangulation (Lawlor and Kosky, 1992).

Apart from the suicide risk factors attached to young male offenders examined above, those who were bullied in custody had an approximately nine-times greater risk of attempting suicide than those who were not bullied (Kiriakidis, 2008). Other identified risk factors were a family history of alcohol problems as well as suicide attempts (Kiriakidis, 2008). It was also found that young prisoners' suicidal behaviours were influenced by exposure to, and contact with, other suicide attempters (Hales et al., 2003).

Prisoners face many challenges upon release from prison, including stigmatisation, failure to obtain employment or housing, and the loss of close personal relationships. Studies in Australia have shown that prisoners have an increased risk of mortality, with the majority of deaths being caused by alcohol and drug abuse, followed by suicides (Stewart et al., 2004; Kariminia et al., 2007a, Andrews and Kinner, 2012). Although suicide is a major problem within Australian prisons, research has shown that the majority (86%) of suicides by offenders occur once the person has been released, particularly within the first 2 weeks. The risk remains significantly higher than

for incarcerated male until 6 months after release (Kariminia et al., 2007a & b). An analysis of suicides in recently released prisoners in NSW showed that they were more likely to be males, having history of psychiatric hospitalisation, multiple imprisonments and less likely to be Aboriginal and Torres Strait Islanders (Kariminia et al., 2007b). However, an earlier study from Western Australia found that non-Aboriginal females were at highest risk of suicide after release from prison (Stewart et al., 2004).

Key Messages

- In Australia, male prisoners have a higher suicide rate than the general population, which remains after their release.
- Admission to the prison psychiatric hospital, violent offences, and repeat imprisonment put Australian male prisoners at an increased risk of suicide.
- Being bullied in custody is a significant factor contributing to suicidal behaviours in young male offenders.

Hospitals

Although a relatively small number of inpatients, male and female, die by suicide during their hospital stay (Lieberman et al., 2004), suicide rates among inpatients are high. These high rates can be explained by the fact that people who are admitted to hospital normally have severe physical illnesses and/or mental disorders. In addition, as indicated in the previous chapters, both physical and mental illnesses are associated with an increased risk of suicide. Further, the presence of acute suicidal ideation is the most common reason for admission to an inpatient setting (Lieberman et al., 2004). While a hospital ward may often be perceived as a protective environment for inpatients, the high rates of inpatient suicide may raise questions related to who is professionally and legally responsible for this phenomenon.

Male gender has been shown to be one of the most common characteristics of inpatient suicides (Blain and Donaldson, 1995; Deisenhammer et al., 2000; Goldney et al., 1985; Speissl et al., 2002; Deborah et al., 1993; Roy and Draper, 1995). Similarly, an Australian study on psychiatric inpatients in a large psychiatric hospital in Melbourne recorded 103 inpatient suicides over a 21-year period, indicating that there were more male (57%) than female (43%) inpatient suicides (Shah and Ganesvaran, 1997). However, the impact of gender can vary between hospitals, nations, and studies. For example, at the University Psychiatric Hospital in Ljubljana, Slovenia, in the period 1984-1993, fewer male than female inpatients died by suicide (Stebalj et al., 1999). In psychiatric hospitals in Guangzhou, China there was almost an equal amount of suicides by males and females between 1956 and 2005 (Li

et al., 2008). Jones et al. (2011) reported that the suicide rate for male inpatients was approximately seven-times higher than the rate for the general population; the male suicide rate was 23-times higher post-discharge based on data from hospital case registers in the United Kingdom between 1972 and 2000. Nevertheless, female inpatients had significantly higher suicide rates than males in hospital, but not after discharge (Jones et al., 2011).

In addition to this gender difference, a few studies have examined the methods used and the location and time of inpatient suicides. A retrospective study of patients, who attempted or completed suicide between 2000 and 2002, from 26 general public hospitals in Hong Kong, reported a total of 34 completed suicides and 132 attempted suicides (Ho and Tay, 2004). The patients who completed suicide were predominantly male, in their mid-50s, and had been admitted with physical problems. They were more likely to complete suicide by jumping from a height (50%) or by hanging/strangulation (47%). It was found that 71% of inpatient suicides occurred inside the hospital, while 29% occurred outside the hospital. This study found a similar number of male and female inpatients attempted suicide, with the biggest proportion (44%) using sharp objects, most frequently in their beds (42%) (Ho and Tay, 2004). On the other hand, Li and colleagues (2008) reported that male and female inpatients were not significantly different in the suicide methods used or the location and time of their death in psychiatric hospitals in Guangzhou, China. In this study, most male and female inpatients died by hanging, drowning, and jumping from a height; 85.7% of inpatients suicided within the hospital while 14.3% suicided outside the hospital (Li et

al., 2008). Early morning and afternoon were the most common times for inpatient suicides (Li et al., 2008). Compared to those who attempted suicide, completed suicides from a Taiwanese hospital were more commonly males with physical disorders; they also used violent means outside the hospital (Cheng et al., 2009). In Australia, inpatient suicides commonly occur during periods of approved leave or after the person absconds from the hospital (Shah and Ganesvaran, 1997).

A number of studies (Wolfersdorf, 2005; Shah and Ganesvaran, 1997; Deborah et al., 1993; Roy and Draper, 1995; Powell et al., 2000) have identified the risk factors for inpatient suicides. Suicide among inpatients is associated with: young age; being unmarried; living alone; a diagnosis of schizophrenia; presence of delusions; a past history of deliberate self-harm; suicidal ideation at the time of, and during, admission; suicide attempts during admission; unstable (fluctuating) suicidal ideation during admission; recent bereavement; and, a family history of suicide.

Despite the high standards imposed on inpatient facilities, patients may not always be protected from harming themselves. Indeed, risk factors related to the physical environment of an inpatient unit (Lieberman et al., 2004) and inpatient care management may often be neglected and an awareness of this may help to better understand this situation. For example, studies which

predominantly examined male suicide completers showed that an increased risk of suicide was demonstrated among patients who had a greater number of ward transfers, longer stays in hospital, more frequent prescriptions of narcoleptics and antidepressants, and involuntary admissions (Deborah et al., 1993; Roy and Draper, 1995; Shah and Ganesvaran, 1997).

Other factors such as availability of suicide means, inadequate observation, the lack of an intensive care unit, under-estimation of suicide risk among inpatients, and poor doctor-nurse communication have been associated with inpatient suicides (Lloyd, 1995). Further, the large clinical demand placed upon hospitals and higher patient-to-staff ratios have challenged the ability of hospital staff to maintain the safety of high-risk inpatients (Bassett and Tsourtos, 1993). De Leo and Svetcic (2010) indicated that poor accuracy in predicting suicidal outcomes, insufficient management of suicidal patients in hospital wards, and poor decision-making concerning whether to hospitalise seem to be important determinants for inpatient suicides. Instead of an over-reliance on screening for common risk factors (i.e., patient characteristics), it has been proposed that regular and repeated psychiatric evaluations (i.e., suicide risk assessment) might be more useful in identifying patients at high risk of suicide (Bassett and Tsourtos, 1993; Lieberman et al., 2004).

Key Messages

- Findings concerning gender differences in inpatient suicide in Australia have indicated higher numbers of male inpatient suicides.
- In Australia, inpatient suicides frequently occur within periods of approved leave.
- Male inpatient suicides are commonly found to have had a greater number of ward transfers, longer stays in hospital, more frequent prescriptions of narcoleptics and antidepressants, and involuntary admissions.
- Insufficient care management resulting from higher patient-to-staff ratios, inaccurate prediction of suicidal risk, and poor decision-making regarding whether to hospitalise are predictors for inpatient suicides.

Immigration detention/ removal centres

People in immigration detention/removal centres are often seeking asylum in the country in which they are detained. These displaced people from all over the world are generally labelled 'asylum seekers' or 'refugees' (Cohen, 2008). These terms are often used interchangeably. Based on the 1951 United Nations Convention, a refugee is defined as a "person having a well founded fear of being persecuted for reasons of religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable, or owing to such fear, is unwilling to avail himself of the protection of that country" (Silove et al., 1993; pp. 607-608). Jones and Gill (1998) indicated that asylum seekers are distinguished from other migrants in terms of their lack of ability to choose where they want to live. Asylum seekers are forced to leave their countries of origin to escape persecution, imprisonment, torture or death; they may have been physically separated from their families and consequently preoccupied by worry about their family members left behind (Jones and Gill, 1998).

Only a very limited number of studies have examined self-harm or suicidal behaviours among detained asylum seekers. However, these few studies have indicated a high incidence of these behaviours. A UK study focusing on immigration removal centres revealed that the detained asylum seekers who died by suicide tended to be male, with a mean age of 27 years (Cohen, 2008). During the period 1997-2005, this study also found that the suicide rate in this population had a similar increase akin to the suicide trend among prisoners. During 1997-2005, detained

asylum seekers had a suicide rate of 112 per 100,000 with a peak of 222 per 100,000 during 2002-2004. The overall suicide rate of detained asylum seekers was higher than the rate in the general population (9 per 100,000); the peak suicide rate of detained asylum seekers was higher than the average suicide rate for prisoners (122 per 100,000). Similar to prisoners, detained asylum seekers most commonly used hanging as a suicide method. Among the asylum seekers who suicided, prevalent risk factors were: a history of mental illness, experiences of torture, previous acts of self-harm, and arriving in the country without first degree family members (Cohen, 2008). However, an Australian study showed that the rates of self-harm for men in immigration detention centres (IDCs) were 41-times greater than for men living in the community and 1.8-times greater than the rates of self-harm for male prisoners (Dudley, 2003). Boys who lived in IDCs, aged below 17 years, were found to have 2.8-times greater risk of suicidal behaviours than male children living in the community (Dudley, 2003).

The actual detention process, and the subsequent environment of the detention centre, may adversely affect the mental health of the detained asylum seekers and could precipitate suicidal ideation and behaviours. A systematic review of studies that investigated factors influencing the mental health of detained asylum seekers in IDCs in Australia, the United Kingdom, and the United States (Robjant et al., 2009) indicated that the experience of detention increased the likelihood of mental health problems such as anxiety, depression, and PTSD, as well as self-harm behaviours and suicidal ideation. Importantly, when children were included in the studies, detention was not found to be conducive to healthy growth and development.

Further, the duration of detention was predictive for the severity of distress; the longer an individual was detained, the poorer their mental health outcomes (Robjant et al., 2009). While initial improvements in mental health were detected after the asylum seekers were released, harmful long-term impacts of detention remained (Robjant et al., 2009).

It must be noted that experiences of significant pre-migration trauma were common in the histories of asylum seekers (Bracken and Gorst-Unsworth, 1991; Silove et al., 1998). Combined with the experiences of detention, the ongoing stress attached to finding asylum in Australia (Silove et al., 1998) appeared to re-traumatise detained asylum seekers, further worsening their mental health status (Silove et al., 1993). Feelings of hopelessness and a sense of injustice were also commonly identified as factors affecting the mental health of detainees (Pourgourides et al., 1997). Dudley (2003) argued that detention procedures, such as referring to a person by number rather than name, can stigmatise detainees. Dudley further lists other experiences which could negatively impact upon the mental health of an asylum seeker: harsh and depriving environments, where some may live behind razor wire for long periods; witnessing ongoing violence, riots, and suicide attempts; and, limited capacity for language to best articulate their plight, especially in terms of communicating their thoughts and emotions (Dudley, 2003).

It is important to note that the self-harming and suicidal behaviours performed by asylum seekers have at times been portrayed as manipulative behaviours with the aim of obtaining visas. However, these behaviours in many cases need

to be considered in terms of the unfavourable conditions experienced during the process of seeking asylum and within the physical detention environment (Dudley, 2003). Indeed, Dudley (2003) stated these behaviours need to be responded to with humanity and empathy. The significant and negative impacts attached to the experiences and process of detention, especially in terms of mental health and suicidal behaviours, have raised important questions in terms of the care that should be provided to those people who seek asylum in this country.

Key Messages

- In Australia, the prevalence of non-fatal suicidal behaviour among male asylum seekers is higher than in the general population and among prisoners.
- The experience of detention increases the likelihood of mental health problems such as anxiety, depression, and PTSD, as well as self-harm and suicidal ideation. These harmful impacts are particularly evident after longer detention and persist after release.
- Detention is destructive to healthy growth and development among child asylum seekers.
- The mental health of an asylum seeker is negatively affected by re-traumatisation due to stressful processes, harsh and deprivable detention environments, contagion of suicide attempts, and limited capacity for language.

Chapter 5

Direct and indirect costs of suicide

Allison Milner and Diego De Leo

Developing an appropriate, sensitive, and reliable understanding of the costs of suicide in Australia is important for at least two reasons. First, estimating the costs associated with suicide can help to describe the widespread and detrimental effects of the behaviour on individuals and families, as well as on emergency and health services. Second, evidence about the costs of suicide can provide an argument in support of suicide research and prevention. This chapter will provide an understanding of the various ways the costs of suicide have been described in Australia. It also seeks to describe some ways in which this work could be expanded to consider the economic, social, and emotional impacts of suicide by gender and age.

Description of the costs of suicide

A recent publication produced by the World Health Organization described the methods used to calculate the costs of injury-related mortality and morbidity (Butchart et al., 2008). The model, seen in Table 13, has been adapted from this publication and provides an example of some direct and indirect costs associated with suicide. The direct and medical impacts of suicide (inclusive of deaths and non-fatal suicidal behaviour) may include the costs of hospitalisation and outpatient services, transportation and ambulances, treatment provided by doctors and nurses, drug and laboratory tests, and counselling services. Suicide also involves non-medical costs, which include expenditure on police and coronial investigations, the involvement of ambulance and fire service workers, and funeral services.

The costs of suicide may also be described at various levels of society including: households (e.g., impacts on family income, medical costs);

organisations (e.g., operating costs and profit, productivity in the workplace); or, at a governmental level (e.g., expenditure of government income, social and health services). In the wider macro context, the costs associated with suicide may be described in terms of impacts on national GDP, medical and other expenses, or on social welfare.

Aside from the considerations as to what to measure, and at which level, three main methodological approaches are commonly used in the estimation of indirect costs. These include:

- *The human capital approach* which measures the value of time lost due to absence from work or reduced productivity;
- *The friction-cost approach* which measures the indirect cost of injury by estimating the cost of replacing those killed or temporarily/prematurely disabled with other existing workers; and
- *The willingness-to-pay approach* which assumes that the total costs of a suicide are the total sum of what people are willing to pay to reduce the risk of a person engaging in the behaviour. This can be estimated through a survey asking individuals how much they would pay to ensure this does not happen to them or a loved one.

As is discussed in greater depth in the following pages, most research conducted in Australia has focused on calculating the effects of suicide on the workforce or health care system. There is less research on the indirect effects of suicide on family and friends, or quality of life.

Table 13. The costs associated with suicidal behaviours

Direct costs		Indirect costs	
Medical costs	Hospitalisation	Tangible	Loss of productivity (wages/time)*
	Outpatient services		Loss of investment in social capital
	Transportation/ambulance		Life insurance
	Physicians		Indirect protection
	Drugs/ laboratory tests		Macroeconomic
	Counselling		
Non-medical	Police and coroner Investigations	Intangible	Health-related quality of life (pain, suffering, psychological)
	Ambulance and fire services		Other aspects of quality of life
	Funeral services		Reduced job opportunities
			Access to schools/public services
			Participation in community life

* This may include loss of income of the victim and by family members/friends affected by suicide

Source: adapted from the World Health Organization, 2004

Past research on the cost of suicide in Australia

A literature review of all past research in academic databases (Pub Med, Scopus) revealed that there have been at least nine studies on the cost of suicide in Australia.

The first studies on the costs of suicide were in the late-1980s (Hassan, 1987; King, 1988). These accounts described the economic costs of youth

suicide being between \$100 million and \$200 million per year. As noted in Australia's National Youth Suicide Prevention Strategy, the reliability of this research is limited by a lack of detail about what was considered in the cost calculations (National Health and Medical Research Council and the Commonwealth Department of Health and Aged Care, 1999).

A more comprehensive account of youth suicide was provided by the Australian Institute of Criminology (Leviton, 1989). This provided the costs of youth suicide in terms of: 1) adjusted income (a calculation of the value of lost income and lost family and community activities for an average person of each sex and each age group; \$219 million); and, 2) the value of the contribution to society (of a person who is a full-time worker until the statutory age of retirement and is not employed thereafter; \$257 million). This study also provided an estimate of the cost of suicide using a "willingness to pay" method (i.e., a calculation of what people were willing to pay to reduce the risk of a person engaging in the suicidal behaviour).

Raphael and Martinek (1994) provided estimates of the health costs attributed to suicides for the financial year 1989-1990. This study suggested a cost estimate of \$460 million for suicide deaths (of all ages); a similar amount was costed for suicide attempts. Later research by Watson and Ozanne-Smith (1997) suggested that the direct and indirect costs of suicide accounted for \$428 million in Victoria during the period 1993 to 1994. Direct costs included expenditure on medical and hospital care, rehabilitation, pharmaceuticals, ambulance, treatment by other professionals; indirect costs included reduced productivity due to morbidity and mortality.

The most recent accounts of the economic costs of suicide in Australia are provided in reports by ConNetica Consulting (2009) and Access Economics (2002; 2003). The first of these reports placed the costs (quantified as the number of days out of work and loss to weekly earnings) of attempted suicide, suicide plans, and suicidality

to be between \$770 million and \$1.2 billion per year. The loss of productivity (five days out of work) of others affected by suicide (an estimated six people per suicide) was estimated to be \$136 million. A further \$133 million was estimated for the hospital care of those engaging in intentional self-harm (based on admission data). The total economic cost of suicidal behaviours in the Australian community was estimated to account for \$17.5 billion each year.

Reports from Access Economics (2002; 2003) have indicated the real financial costs associated with the suicides of those with bipolar disorder as equivalent to \$1.59 billion, while costs associated the suicides of those with schizophrenia was approximately \$1.85 billion. These estimates considered both direct costs (to the health care system) and indirect costs (lost earnings, premature deaths, carer costs, and prison, police and ambulance costs). Although both these reports provide an updated measure of the different ways in which suicide can be assessed, their central aim is to calculate the cost of mental illness, rather than suicide. Presumably, the direct and indirect costs associated with suicide – exclusive of mental or physical disorders – would be much higher than the estimates provided in these reports.

A different way of measuring the costs of suicide is through the Potential Years of Life Lost (PYLL) approach, which provides an estimate of the average years a person would have lived if he or she had not died by suicide. The PYLL calculation measures the difference between an arbitrary cut-off age-of-death (e.g., retirement age of 65 years of age) and the actual age-of-death. Deaths occurring at younger ages are weighted more heavily than

those occurring in the older age-groups (Gunnell and Middleton, 2003; Knox and Caine, 2005; Yip et al., 2005). For example, a person who dies aged 25 years has a greater amount of “years of life lost” (i.e., 65 years – 25 years=40 years) than a person who dies aged 60 years (i.e., 65 years – 60 years=5 years). At a population level, a rising number of PYLLs (i.e., increasing youth suicide) is likely to have a detrimental impact on society as younger persons who die prematurely can no longer make economic or social contributions in the form of paid employment. Several papers by Doessel et al (2009a; 2009b; 2011), based on analyses conducted in Australia, have found that the PYLL measurement of suicide has been increasing over time. These analyses also show that suicide has created a male PYLL score between three- and four-times the female PYLL score. This research suggests that suicide among males has accounted for an increasing burden of premature mortality over time.

What is missing in terms of quantifying the cost of suicide in Australia

There are numerous ways in which an understanding of the potential costs of suicide could be improved. For example, there has been little recent research (after Watson and Ozanne-Smith, 1997) on the direct and indirect effects of suicide on multiple aspects of society. This is problematic as it is likely that these costs have changed since the time when the report by Watson and Ozanne-Smith (1997) was published.

Further, it is also likely that the costs of suicide differ by age and between males and females. For example, an American study by Corso et al. (2007) indicated that the total lifetime cost of death by

suicide is over three-times greater for males (\$27.8 million) than females (\$5.5 million). These costs included medical care, coronial and police investigations, and loss in terms of economic productivity (i.e., household wage). For both males and females, these costs were highest in the age-groups 25-44 years than in younger (younger than 24 years) or older age groups (45+ years). The cost of male deaths, when a firearm was used, was nine-times greater than female deaths with the same method (\$14.9 million versus \$1.6 million). This study shows the importance of calculating the direct and indirect costs of suicide by age, sex, and method of death.

Research on the costs of suicide needs to involve multiple perspectives, including expenditures on: police, forensic, and coronial investigations; funeral directors; health services; and, the impact on the wellbeing of the next-of-kin. While research on the costs of suicide in Australia can provide a basic account of some of the adverse effects associated with the behaviours, it suffers from a lack of specificity and fails to measure several important direct and indirect costs of suicide to the nation.

Overall, research in Australia suggests that the cost of suicide is likely to be between \$770 million and \$1.2 billion per year. This account considers the costs associated with the labour market and health care system. However, it does not recognise the potential ramifications of suicide on emergency services, such as police, or the flow-on effects of suicide on the next-of-kin. Further, Australian research has failed to consider a differential cost analysis between males and females, or by age. There is a clear need for this type of investigation considering that males die by suicide three – to

four-times more often than females. There is also a need to assess any possible differences in the costs of suicide by age and method of injury. This is particularly important given the higher rates of suicide among young males using hanging in Australia (De Leo et al., 2003).

Key messages

- The most recent accounts of the economic costs of suicide in Australia estimate the total economic cost of suicidal behaviours in the Australian community to be \$17.5 billion each year.
- Australian research has failed to consider a differential cost analysis between males and females, or by age. There is a clear need for this type of investigation considering that males die by suicide three – to four-times more often than females.

Chapter 6

Male help-seeking

Lay San Too, Kairi Kõlves and Diego De Leo

Generally, males seek help from health professionals less often than females. They also tend to utilise health services less frequently. This reluctance to seek help becomes especially problematic in terms of the potential prevention and early treatment of mental illnesses and suicidal behaviours. Indeed, if appropriate help is sought, and found, men may be able to work through different emotional, physical, and interpersonal difficulties. This may protect them against future suicidal behaviours. Therefore, the problems attached to male help-seeking are deserving of greater attention and better understanding.

Help-seeking among suicidal males

A review paper of 40 studies, conducted up to May 2000, examined the prevalence of contact people had with health services prior to their suicide (Luoma et al., 2002). It was found that, in both the year prior to suicide and the month prior to suicide, contact with primary health services was more common than contact with mental health services. The results from this study indicated that, compared to women, fewer men had contact with both primary and mental health services. In the month prior to their suicide, on average, 36% of women and 18% of men had contact with mental health services; however, these behaviours were analysed across the lifespan of the suicide rather than between different age-groups. However, only two studies within this review examined gender differences in contacts with primary health services. These findings indicated that in the year prior to their suicide, 100% of females

and 78% of males had contact with a primary health service. From these results, it appears that interventions involving primary health services may better reach suicidal males than those based within mental health services; however, more research is needed to understand the impacts of these gender differences more clearly.

More recently, an Australian study examined the types of treatment sought, and the various services utilised, by suicide attempters in two major Queensland cities (Brisbane and the Gold Coast) from community survey data resulting from the WHO/SUPRE-MISS (Milner and De Leo, 2010). It was found that non-help seekers tended to be males who had neither communicated their intention to act in such a way nor had previously sought help. These male suicide attempters were more likely to have used hanging as their method but less likely to frame their actions within mental health issues at the time of their attempt (Milner and De Leo, 2010). This study found that female suicide attempters tended to access multiple care pathways. Compared to females, male help-seekers were significantly less likely to utilise hospitals or mental health professionals following a suicide attempt (Table 14). These findings echoed earlier conclusions drawn from a study of the same region, where males with suicidal ideation, or who had attempted suicide, were 2.3-times less likely to attend hospital compared to females (De Leo et al., 2005).

Table 14. Individual characteristics associated with seeking treatment from different sources of health care following a suicide attempt^a

	No. (n = 142) %	One Source (n = 133) ^b			Two or More Sources (n = 124) ^b		
		%	OR	CI	%	OR	CI
Gender							
Male	43.66	41.35	0.91	0.56–1.47	24.19	0.41*	0.24–0.69
Female	55.63	57.89	1		75.81	1	
Age							
18–24	7.75	7.52	0.76	0.23–2.51	8.87	1.11	0.33–3.80
25–34	23.94	20.3	0.66	0.25–1.76	16.94	0.69	0.24–1.97
35–44	25.35	22.56	0.69	0.26–1.83	25	0.96	0.34–2.65
45–54	23.94	22.56	0.74	0.28–1.94	20.97	0.85	0.3–2.39
55–64	3.52	13.53	1.36	0.44–4.22	12.9	1.62	0.49–5.28
65–74	7.04	3.76	0.83	0.19–3.72	5.65	1.56	0.36–6.69
75+	0.7	9.02	1		7.26	1	
Relationship status							
Married/de facto	40.14	39.1	1.22	0.7–2.13	45.16	1.59	0.9–2.8
Separated	5.63	11.28	2.52**	0.97–6.49	8.06	2.02	0.73–5.63
Divorced	12.68	15.79	1.57	0.74–3.31	12.9	1.44	0.65–3.19
Widowed	2.82	0.75	0.34	0.04–3.11	5.65	2.83	0.77–10.4
Never married	38.73	30.83	1		27.42	1	
Employment							
Unemployed	26.76	6.02	0.97	0.39–2.45	32.26	1.28	0.52–3.17
Not able/ill	58.45	48.12	1.73	0.57–5.23	43.55	2.82	0.98–8.07
Not in labor force	8.45	6.77	1.50	0.87–2.58	8.06	1.62	0.92–2.83
Employed	4.23	33.08	1		8.87	1	
Education							
University	2.82	6.02	1.2	0.68–2.12	3.23	1.27	0.73–2.21
Trade	17.61	20.3	1.4	0.73–2.68	8.87	0.53	0.24–1.17
High school	28.17	27.82	2.59	0.74–9.06	33.87	1.21	0.29–5.04
Primary school	49.3	40.6	1		46.77	1	
Lifetime plans							
Yes	60.56	63.16	1.23	0.74–2.02	66.94	1.41	0.84–2.36
No	38.03	32.33	1		29.84	1	
Intent							
Very serious	45.07	41.35	0.63	0.31–1.27	42.74	0.48	0.23–0.99
Serious	19.72	18.05	0.63	0.35–1.12	15.32	0.58	0.33–1.03
Cry for help	23.24	33.83	1		37.9	1	
No. attempts							
Many (4+)	4.93	11.28	1.33	0.79–2.22	8.06	1.32	0.78–2.23
2–3	31.69	35.34	2.72**	1.05–7.05	35.48	1.93	0.70–5.33
Once	62.68	52.63	1		53.23	1	
Communicated							

^aReference category is “no treatment sought”

Source: Milner and De Leo, 2010, p. 414

^bValues may not add up to 100% due to missing values

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*p < 0.001

Similarly, a five-year retrospective examination of all suicides that had occurred in West Kent (United Kingdom) found that male suicides tended to have had no contact with mental health services in the year prior to their death and were less likely to have expressed any mental health concerns (Hamdi et al.,

2008). Further, data retrieved from the Tyrol Suicide Register (Austria) between October 1998 and September 2002 revealed considerable gender differences in help-seeking and the specialisations of the help sought (Deisenhammer et al., 2007). This study found that men had lower rates of contact

with all physician groups (included were GPs and psychiatrists/neurologists) than women. However, in general, contact with these physician groups was much more likely to be made by male suicides in the three months prior to death; defined in this study as 'the suicide quarter'. More specifically, this increase in contact was found with GPs, but not with psychiatrists/neurologists. The study also suggested that the tendency of people who died by suicide, both male and female and especially those aged 60+ years, to contact multiple GPs during the 'suicide quarter' implied their needs were not met by a single doctor (Deisenhammer et al., 2007).

Even when men seek help, it has been argued that the patterns of help sought, and who are accessed, may not be the most appropriate in terms of preventing suicide. Male help-seeking tends to be done in an indirect manner (Tudiver and Talbot, 1999). A paper by Smith et al. (2006), which explored help-seeking and health service use in males, further elaborated this idea. They indicated that men tend to confide in, and seek help from, their partners and friends. Subsequently, it was suggested that men may feel more comfortable accessing help and support in environments such as sporting venues, workplaces and pubs; these environments are seen to be more 'masculine'. In addition, a study from Somerset found that their subjects preferred to seek help from friends or relatives. However, males, young people and those from affluent areas, were the least likely to seek help (Oliver et al., 2005). It can be argued that these indirect patterns of male help-seeking, when help is sought at all, may not be the most appropriate form during an acute suicidal crisis. In these circumstances, help from professionals may be more effective.

Previous literature has highlighted a trend of delayed help-seeking among men who experience both physical and mental illnesses (see review by Galdas et al., 2005). However, these previous studies have not always adequately explained the processes involved in male help-seeking behaviours. The Australian Survey on Mental Health and Wellbeing 2007 incorporated information about the use of mental health services. These data indicated that Australian males were less likely to use mental health services than Australian females (27.5% vs. 40.7%; Burgess et al., 2009). Among males, the frequency of use seemed to be highest in the 45-54 years age-group (38.6%) and lowest in the 16-24 years age-group (13.2%). However, a study which used a random community sample in Victoria, revealed that one in ten of the participants had made contact with public mental health services for a variety of reasons, but particularly for psychiatric care (Short et al., 2010). Interestingly, this study found nearly equal proportions of men and women among these help-seekers. In light of these patterns of delayed help-seeking, it can be argued that the impacts of physical and mental illness may be further increased in terms of male suicidality.

Factors affecting suicidal male help-seeking and service use

Male help-seeking behaviours, and the ways in which men use health services when they are suicidal, are significantly affected by interactions between the social, cultural, and psychological environments which surround these individuals and services. Addis and Mahalik (2003) posit a gender-based social-psychological model of help-seeking. In this model, male help-seeking is influenced by masculine socialisation – the

processes by which men learn the behaviours that are socially acceptable for males. Indeed, it has been argued that exposure to, and endorsement of, masculine norms – which include ideals of stoicism and emotional suppression – impede male help-seeking behaviours (Lee and Owens, 2002b). Further, adherence to other masculine characteristics, such as dominance, superiority, independence, and self-reliance, can construct male help-seeking as indicative of dependence, vulnerability, and submission to someone more powerful (Lee and Owens, 2002a; Courtenay, 2000; Mahalik et al., 2003).

Masculine stereotypes can influence men to ignore preventive healthcare measures, such as screening, where this may then be delayed to their detriment. For example, negative attitudes towards the use of mental health services are especially prevalent among American and Canadian men, especially those who are young, single, less-educated, and with substance abuse or dependence problems (Sareen et al., 2009). Similarly, another Canadian study found that less positive attitudes towards help-seeking were found in younger adults and men compared to older adults and women (Mackenzie et al., 2006). In this study, men were less open than women in acknowledging their mental health problems, which negatively impacted on their likelihood of seeking professional help. Mackenzie and colleagues (2006) suggested that, in combination, these factors might contribute to men's under-utilisation of mental health services.

Wilson and Deane (2012) indicated that the perceived need for autonomy, and a fear of help-seeking in general, are strong barriers against seeking care for a mental health issue. They found

that young males reported a significantly stronger need for autonomy than young females, and that the need for autonomy was a significantly stronger barrier than help-seeking fears for both males and females. A study by Tudiver and Talbot (1999) found that perceived vulnerability, fear, and denial were vital influences on whether men sought help. In addition, a survey conducted in Belgium, France, Germany, Italy, the Netherlands, and Spain found that men with specific mood and anxiety symptoms were less likely to perceive a need for mental health care than women with similar symptoms (Codony et al., 2009). Australian males with suicide plans were less likely to perceive help to be necessary than females with suicide plans (De Leo et al., 2005).

Key Messages

- Australian males' help-seeking behaviours are negatively influenced by masculine stereotypes. This is particularly so in young males aged 16-24 years.
- Negative attitudes towards help seeking and a perceived need for autonomy are strong barriers to help seeking among young males.
- Australian males compared to females who had suicide plan are less likely to perceive the need for help.

Chapter 7

Suicide prevention for men

Eeva-Katri Kumpula, Kairi Kõlves, Naoko Ide, Kathy McKay and Diego De Leo

The ways in which suicide prevention initiatives can target different stages of the suicidal process have been described by Mann et al. (2005). These authors argue that suicidal ideation may stem from stressful life events and/or psychiatric disorders. These factors can be influenced through education and awareness programs, screening of individuals at risk, and various treatments. However, it must be noted that while the impacts of environmental factors, such as stressful life events, can sometimes be reduced, the events themselves may be unavoidable. Aspects of suicide prevention can focus on building resilience as a way to combat the impacts of these inevitable events. Once suicidal ideation is present, it can be detected by screening individuals at risk. Before ideation leads to a suicidal act, it can be targeted through treating issues such as underlying disorders and impulsivity, hopelessness and/or pessimism. Other suicide prevention initiatives may also limit access to suicide means and exposure to negative or harmful examples in the media.

Australia was the one of the first countries to reflect upon the national and global evidence which recognised the devastating consequences of suicidal behaviours (Jenkins and Kovess, 2002; Department of Health and Ageing, 2008). Since the early 1990s, the Department of Health and Ageing has led the national approach for suicide prevention. The National Youth Suicide Prevention Strategy 1995-1999 was further expanded into the National Suicide Prevention Strategy (NSPS); a strategic plan to prevent suicide across the whole lifespan. In 2000, the Living Is For Everyone: A Framework for Prevention of Suicide and Self-harm in Australia (LIFE Framework) was launched. This was later evaluated and further development

led to the release of the Living is For Everyone (LIFE) Framework (2007).

The LIFE Framework (2007) aims to provide a strategic plan to reduce suicide by achieving six national action areas:

1. Improve the evidence base and understanding of suicide prevention;
2. Build individual resilience and the capacity for self-help;
3. Improve community strength, resilience and capacity in suicide prevention;
4. Take a coordinated approach to suicide prevention;
5. Provide targeted suicide prevention activities; and,
6. Implementing standards and quality in suicide prevention.

The LIFE Framework (2007) has adopted the Mrazek and Haggerty (1994) model of reducing risks of mental disorders and adapted it to suicide prevention for these action areas. Subsequently, eight domains have been included with the aim of facilitating the continuum of suicide prevention activities:

- Universal Intervention
- Selective Intervention
- Indicated Intervention
- Symptom Identification
- Early Treatment
- Standard Treatment
- Longer-Term Treatment and Support
- Ongoing Care and Support

The NSPS governs suicide prevention initiatives through the LIFE framework. LIFE's eight suicide prevention domains will be used here to categorise different interventions (Department of Health and Ageing 2008). The first three categories are Universal, Selected, and Indicated Interventions. As described in Table 15, Universal Interventions include activities which are designed to reach general populations as a whole. Selected Interventions are more tailored to particular groups or communities identified to be at an increased risk of suicide. Indicated Interventions are targeted to people already showing signs or symptoms of suicidality. Consequently, Indicated Interventions incorporate activities which also fall under the domains of Symptom Identification, Early Treatment, Standard Treatment, Long-Term Treatment and Support, and Ongoing Care and Support. In Australia, there has been an effort to

provide suicide prevention activities within all eight domains of the model. This chapter will discuss different types of suicide prevention activities throughout the world, particularly focusing on implications for men who are at increased risk of suicide in Australia. It is important to note that these eight domains are not easily separated conceptually, and often overlap. Consequently, suicide prevention activities also target multiple domains of the model simultaneously. For example, Selective Interventions that target at-risk groups (e.g., young people with mental illness or Aboriginal and Torres Strait Islander Peoples) provide support services to increase resilience and, at the same time, identify early warning signs, and provide case management and other psychological treatment. Therefore, the following section will be structured using a broader grouping of these eight domains.

Table 15. LIFE's eight domains of intervention with examples of outcomes and the parties involved

	Target groups	Outcomes	Who is involved?
Universal intervention	Activities that apply to everyone (whole populations)	Reducing access to means of suicide, altering media coverage of suicide, providing community education about suicide prevention and creating stronger and more supportive families, schools and communities.	Involving: individuals, families, consumer and carer organisations, multicultural organisations, local councils, sporting and recreational clubs, workplaces, media, educational organisations, providers of education and information on mental health and suicide prevention, service clubs and pubs.
Selective intervention	For communities and groups potentially at risk	Building resilience, strength and capacity and an environment that promotes self-help and help-seeking and provides support.	Involving: individuals, families, consumer and carer organisations, multicultural organisations, local councils, sporting and recreational clubs, workplaces, media, educational organisations, Divisions of GP, service clubs and pubs.
Indicated intervention	For individuals at high risk	Building strength, resilience, local understanding, capacity and support; being alert to early signs of risk; and taking action to reduce problems and symptoms.	Involving: individuals, families, consumer and carer organisations, multicultural organisations, GPs, police, gerontologists, rehabilitation providers, emergency workers, specialist physicians, sporting and recreational clubs, workplaces, educational organisations, service clubs and pubs.
Symptom identification	When vulnerability and exposure to risk are high	Being alert to signs of high risk, adverse health effects and potential tipping points; and providing support and care.	Involving: GPs, help lines, police, gerontologists, rehabilitation providers, emergency workers, specialist physicians, teachers, pharmacists, workplaces family and friends and other gatekeepers.
Early treatment	Finding and accessing early care and support	Providing first point of professional contact; targeted and integrated support and care; and monitoring and ensuring access to further information and care.	Involving: GPs, psychologists, allied mental health professionals, Aboriginal Health Workers, emergency departments, police, gerontologists, emergency workers, specialist physicians, community health services, help lines, crisis teams, school counsellors.
Standard treatment	When specialised care is needed	Providing integrated professional care to manage suicidal behaviours and improve wellbeing as a step in recovery.	Involving: psychiatrists, psychologists, GPs, allied mental health professionals, Aboriginal Health Workers.
Longer-term treatment and support	Preparing for a positive future	Providing ongoing integrated care to consolidate recovery and reduce the risk of adverse health effects.	Involving: psychiatrists, psychologists, GPs, allied mental health professionals, families, workplaces, local community organisations and clubs, rehabilitation services, Aboriginal Health Workers, help lines.
Ongoing care and support	Getting back into life	Building strength, resilience, and adaptation and coping skills, and an environment that supports self-help and help-seeking.	Involving: GPs, allied mental health professionals, Aboriginal Health Workers, community service providers, families, local community organisations, workplaces and clubs.

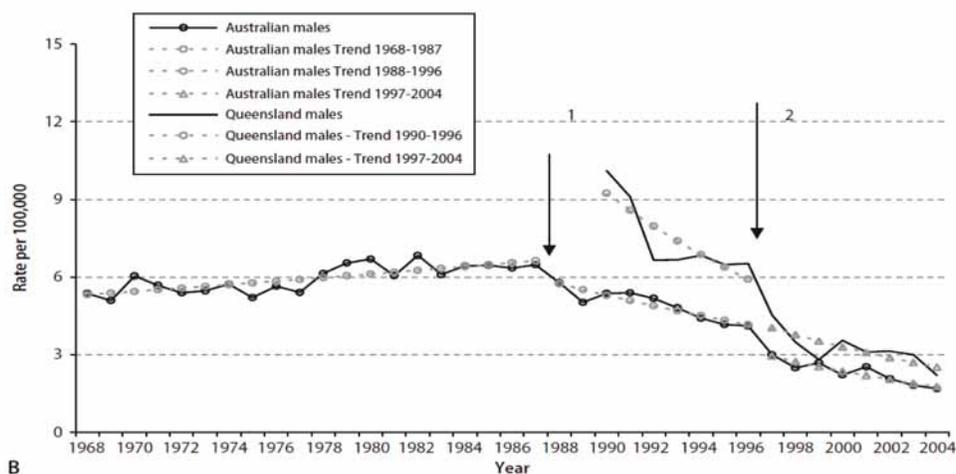
Intervention

Universal Intervention

Restriction of means

A Universal Intervention which has supportive evidence to its credit is the restriction of different means of suicide (Mann et al., 2005). It has been argued that, if the window of high suicide risk is short, a delay in accessing means may allow this window to close before the attempt is made (Florentine and Crane, 2010; Hawton, 2007). For example, changing the pack size of some over-the-counter analgesics has appeared to reduce intentional overdose suicides using these medicines (Hawton et al., 2001; Hawton, 2002). In addition, it has been argued that gun control restriction has been an effective intervention (Beautrais et al., 2006; Gagné et al., 2010). Considering that males are more likely to use firearms, their suicidal behaviours are affected by those restrictions (Denning et al., 2000; Värnik et al., 2008). However, even before the National Firearms Agreement (NFA) restricted gun ownership, the rate of firearm suicides was declining in Australia (Klieve et al., 2009b).

It has also been argued that the change in the use of firearms as a method was affected by changing cultural and social norms within Australia (Klieve et al., 2009b). It has been argued that if a method-type is generally available, it may be viewed as a more socially acceptable means for suicide (Hawton, 2007). However, the cultural acceptability of a specific method-type may change and consequently affect whether a person will choose that method in the future; firearms and hanging are examples of this change (Klieve et al., 2009b). In 1987, the National Committee on Violence was established to examine the state of violent crime in Australia and any related social, economic, psychological and environmental aspects. One consequence of this Committee's examination was the NFA. Taking into account restrictions on gun ownership and the much-publicised massacre which occurred in the year prior to the NFA, it appears that the use of firearms may now be less socially and culturally acceptable (Figure 27).

Figure 27. Australian and Queensland male firearm suicide trends, 1968-2004

Two important events have been marked in the graph: establishment of the National Committee on Violence (1) and the National Firearms Agreement (2)

Source: Klieve et al., 2009b, p. 288

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Restricting access to other types of physical means of suicide such as suicide “hotspots”, like high ledges, bridges, or buildings, may also reduce prevalence of suicides (Skegg and Herbison, 2009). In contrast, removing barriers may have the opposite effect whereby the number of suicides increases at the site (Beautrais et al., 2009). Even if access to a specific site cannot be fully blocked, attempts can be made to reduce suicidal behaviours by erecting signs with contact details for crisis lines or installing telephone booths for such calls to be made (King and Frost, 2005). In Brisbane, barriers erected along the Gateway Bridge were effective in reducing the number of suicides at that location (Cantor et al., 1989). In Melbourne, barriers were erected at the West Gate Bridge to improve public safety

(VicRoads, 2013). In Sydney, The Gap Park is being developed to prevent jumping suicides at the site through: increased lighting; installation of emergency telephones and signs encouraging people in crisis to seek help; the fencing-off of high-risk areas; and, the installation of CCTV so security staff can monitor the area (Woollahra Municipal Council, 2007a, Woollahra Municipal Council, 2007b). The simple strategy of reducing the availability of “jumping sites” may prevent suicides (Beautrais, 2007). In addition, restricting access to potential high impact collision sites, such as highways and train and subway tracks, is also important. The detection of potential suicide attempters may also be improved by increased monitoring and restrictions of ‘clutter’ e.g. on train station platforms, such as benches or

kiosks (Gaylord and Lester, 1994). Further, deep channels between train tracks, and sliding doors which separate the platform from the tracks when a train is not stopped at the station, and protective structures which skirt low at the front of trains, can effectively restrict access to these impact sites (Krysinska and De Leo, 2008).

Universal Interventions can also involve the restriction of other factors, such as the use of alcohol. International studies have demonstrated that restricting access to alcohol has had a positive effect on suicide rates in Slovenia (Pridemore and Snowden, 2009), the United States (Sloan et al., 1994), Denmark (Skog, 1994), and Iceland (Lester, 1999). This has been framed in terms of the effects chronic alcohol use can have on suicide by creating social and mental health problems. In addition, alcohol use may also lower the inhibitions of people with suicidal ideation and thereby act as a trigger for suicidal behaviours (Norström and Ramstedt, 2005). Male suicide rates seem to be particularly impacted by alcohol restrictions. During the late 1980s, in the former Soviet Union, a strict government anti-alcohol policy led to such reductions in male suicide rates (Wasserman and Värnik, 1998; Leenaars, 2005; Värnik et al., 2007) that it was called 'history's most effective suicide prevention programme for men' (Wasserman and Värnik, 2001). During this period of alcohol restrictions, male suicide rates decreased by up to 42% in the Baltic and Slavic Republics; in contrast, male suicide rates only decreased by about 8% in the rest of Europe during the same period. While these reductions cannot be attributed to the alcohol restrictions alone, the restrictions did appear to have a positive impact. Before the anti-alcohol policy, a positive blood alcohol test result was found in 54% of male suicide cases;

during the time of the policy, these results reduced to 41% (Värnik et al., 2007). Further, decreases in the alcohol-positive suicides appeared to be correlated with reductions in overall suicide rates; overall suicide rates decreased by 34% in Russia and by 43% in Estonia (Värnik et al., 2007). After the end of the restrictions, alcohol-positive suicides increased again. However, there was no change in the rate of alcohol-negative suicides. It has been argued that to effectively reduce suicide rates, any restriction of alcohol must also be accompanied by other measures, such as treating any underlying psychiatric problems faced by alcoholics (Wasserman and Värnik, 2001).

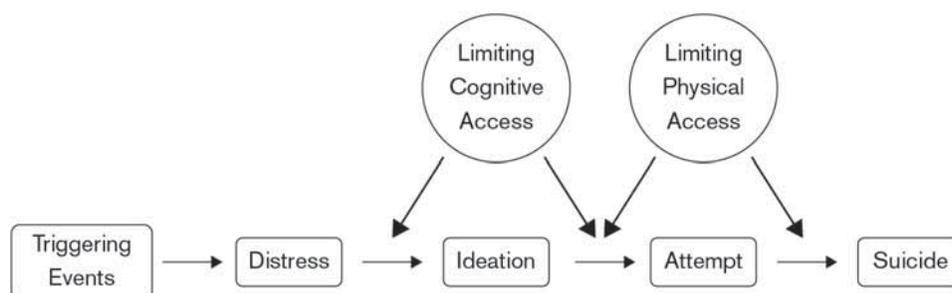
When designing interventions which restrict the access to specific means, case fatality (fatal attempts/all attempts) and frequency of use are often considered to decide the most appropriate means to restrict (Nordentoft, 2007b). However, if one method is restricted, there is a potential for means substitution – where another method is chosen to replace the restricted method (Florentine and Crane, 2010; Daigle, 2005). Yet, the limited capacity for problem-solving often attributed to suicidal people may impact upon their ability to quickly substitute methods; they may be delayed enough for a longer-term intervention to be implemented (Daigle, 2005). Further, it has been argued that men may be less likely to move away from their first choice of method (De Leo et al., 2003). Indeed, it is posited that, if more lethal methods are effectively restricted, only less lethal methods will be available and so an attempt may be less likely to end in death (Florentine and Crane, 2010).

If the suicide process can be stalled or delayed at some stage, suicide may be prevented (Figure

28). In an Australian study, about two-thirds of people who attempted suicide defined their act as impulsive, which suggests that an attempt may be thwarted if there are no means to act on such an impulse (De Leo et al., 2005). Hawton (2007) argued that, while the sudden acquisition of means may trigger suicidal ideation into action, resilience to future suicidal acts may follow if the acuteness (impulsiveness) passes. For example, survivors

of highly lethal attempts (including falling in front of a train and jumping from a height) can have a smaller long-term risk of suicide compared to the general population. However, restricting means alone does not solve underlying psychopathology in suicidal people, and so appropriate professional help should also be administered (Gagné et al., 2010; Bertolote et al., 2004).

Figure 28. Limiting access to suicide means may disrupt the suicide process at several stages



Source: Florentine and Crane, 2010, p. 1627

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Media reporting and public awareness

Detailed media descriptions of suicidal acts, when framed in terms of romantic tragedy, can lead to vulnerable people copying the act. Explicit descriptions of the method used may lead to an increase in the future use of that method (Blood et al., 2007). Before media guidelines were introduced, the Australian media's reporting of suicides had been problematic. During the 1980s, after major Sydney and Melbourne newspapers reported on various suicides, there appeared to be corresponding increases in male suicide (Hassan, 1995). Further, there appears to be evidence of 'copycat' behaviours following high profile suicide

reports (Pirkis et al., 2006), especially in cases of celebrity suicide where the deceased is perceived to be an idol or role model (Jobes et al., 1996; Stack, 2003). However, when in compliance with guidelines, suicide-related media reports that focus on resilience and healthy strategies to cope with hardship and suicidal ideation can help to decrease vulnerability to suicide (Niederkröthenthaler et al., 2010). Such benefits arise when sensationalism and repetition are removed from stories and replaced with information on crisis services and survival. Media guidelines have been rather well adopted and, subsequently, reporting

practices have improved in Australia over time (Pirkis et al., 2009). Mindframe, the Australian resource for reporting suicide and mental health issues, has also issued media guidelines on how to report suicide in a way that does not further increase the risk in vulnerable individuals (Department of Health and Ageing, 2011). In addition, Mindframe also has guidelines on how Aboriginal and Torres Strait Islander events are reported, with special reference on consulting with Aboriginal and Torres Strait Islander communities and how the deceased can be referenced without causing greater distress.

Two international studies which reviewed the major campaigns for reducing depression and increasing suicide awareness found little evidence of their efficacy (Dumesnil and Verger, 2009; Mann et al., 2005). Although awareness of suicide rates and of suicide in general, as well as the willingness to tell someone to seek help, appear to be slightly increased in the short-term, there do not seem to be any effects on personal help-seeking attitudes. Six Australian studies have shown that, while long-term public depression campaigns do improve awareness of depression, the effects have been modest (Dumesnil and Verger, 2009). International studies have demonstrated that suicide awareness campaigns may have only short-term, slight effects on suicide hospitalisations or the number of calls to suicide hotlines (Mann et al., 2005). Altogether, it may appear that public awareness campaigns have had little effect overall. Another study indicated that the recognition of depression as a debilitating and common disease

has increased through awareness programs, particularly in specific groups such as young urban women (Highet et al., 2006). In addition, greater awareness of, and openness about, depression has been achieved by the *beyondblue* Australian national campaign (Jorm et al., 2006b). Here, exposure to examples of, or actual persons with, mental health issues appears to lessen the stigma associated with these conditions (Jorm et al., 2010). However, a South Australian study investigating persons with major depression and/or suicidal ideation found that, over a 10-year time period from 1998 to 2008, attitudes to treatment-seeking and treatment-seeking behaviour did not improve despite extensive community education programs (Chamberlain et al., 2012). Targeting specific, smaller populations within the community and tailoring awareness campaigns to them appears to be more effective, as is repeated exposure to such campaigns (Dumesnil and Verger 2009). However, not all campaigns should focus on mental health issues. Campaigns which target those without mental health issues, but who may be at high risk of suicide due to relationship breakdowns or financial problems, can help these people recognise their problems and seek help (Judd et al., 2012). As well, young men at risk of suicide who have no contact with primary health services could be reached through public awareness campaigns (Stanistreet et al., 2004). The *headspace* program also offers resources and training about youth mental health issues for people working with young people (National Youth Mental Health Foundation, 2011a).

School-based programs

Adolescence is a time of dramatic change in a young person's life where many and varying stressors need to be coped with. In some cases, suicide may result from these pressures and adolescent boys can be more vulnerable (Pompili et al., 2010a). As education tends to be almost universally compulsory, schools are a natural environment for youth suicide education to reach the widest audience and it can also be the starting point from which mental health issues and other difficulties faced by students can be addressed and managed. However, schools need to develop policies for managing and maintaining suicide prevention activities, and then define the necessary responsibilities and procedures. Universal Intervention activities based in schools can include: the development of school policies for suicide prevention; training teachers and counsellors about warning signs in youth; developing peer-assistance programs; increasing school connectedness and feelings of togetherness; increasing school-home connections; and creating school-based crisis teams (King, 2001). Further, skills training and social support have shown to have some effectiveness in reducing suicide risk factors and enhancing protective factors, such as problem-solving skills in students (Pompili et al., 2010a). Facilitating behavioural changes and teaching coping strategies within the general student population have also been shown to be effective in improving confidence and coping strategies, as well as reducing suicidal ideation. Yet, few studies have examined the efficacy of curriculum-based general suicide awareness or postvention programs and in those cases that have their findings have been problematic. A large study that

reviewed the effects of the Australian *beyondblue* high school-based general multi-component intervention did not find improvements in either the students' depression scores or coping strategies (Sawyer et al., 2010). Many schools in the study found that adjusting their routines to the program was time-consuming and this may have hindered efficacy. However, early exposure to mental health promotion, as well as appropriate interventions, can be important factors to maximise beneficial effects on mental health (Wyn et al., 2000).

MindMatters, an Australian school-based mental health promotion program commenced in 2000, helps schools integrate and refresh their existing interventions and initiatives to form a tailored, structured mental health promotion network for the whole school. Initiatives in the MindMatters curriculum framework focus on everyone in the school, as well as students who specifically need additional help or counselling. Students are encouraged to take part in the program in useful and responsible ways, with teachers only acting as facilitators. While the program process of teacher training and adoption of the program within schools have been evaluated, outcomes regarding improvements in students' mental health have not been formally evaluated (MindMatters, 2011). Internationally, another interactive school-based program, the American Raising Awareness of Personal Power (RAPP), included role-play, interactive games, and analysis of peer stories. It appeared that RAPP improved students' knowledge, attitudes, and self-efficacy for suicide prevention (Cigularov et al., 2008). Indeed, within health education, interactive and action-oriented methods may facilitate prevention, as issues are addressed before they occur and self-healing and problem-solving are encouraged (Wyn et al.,

2000). It can be argued that Australian boys may benefit from this type of education as they tend to have less knowledge about suicide awareness and may be more likely to keep suicidality a secret before training (Hazell and King, 1996). However, any education targeted towards young people needs to be provided in an appropriate and interesting way in order to be effective. As young people tend to prefer friends as sources of help and disclosure, peer-assistance training may offer useful prevention possibilities (De Leo and Heller, 2004b). Preliminary evidence suggests that peer-assistance training does improve knowledge of warning signs and gate-keeper skills (Stuart et al., 2003). However, potential adverse effects on the helpers need to be clarified in further studies (Pompili et al., 2010a).

Key Messages

- Restricting means to suicide is an effective suicide prevention method. It helps to ensure methods such as firearms, drugs, or jumping sites are not readily available; it may also consequently affect whether these methods are eventually considered to be less socially acceptable.
- Restrictions on alcohol consumption have been associated with decreased suicide rates in high consumption countries.
- Explicit descriptions of suicide methods or romanticising a suicidal act in the media may lead to vulnerable people copying the act. Media adherence to reporting guidelines may prevent this.
- Positive examples of people's resilience in the face of mental health problems and suicidality in the media may help to reduce suicidal behaviours.
- Making the general public, including high risk groups, aware of symptoms of depression or suicidal ideation, and of suicide prevention resources, has not been shown to clearly encourage help seeking.
- Exposure to suicide awareness campaigns and information about associated resources should start at an early age to combat the development of stigma attached to help-seeking; despite the limited evidence, this may be of importance to males.
- Increasing resilience and improving coping skills may be an effective method for youth suicide prevention.

Selective and Indicated Interventions

Selective Interventions target groups of people or population subgroups who are potentially at risk of suicide. Indicated Interventions target individuals already at risk of suicide (Department of Health and Ageing, 2008). Many service providers offer both types of interventions, often as part of the same group of services. Therefore, this section will examine Selective and Indicated interventions together.

Several groups are identified as risk groups for suicide and suicidal behaviours. These are: men, Aboriginal and Torres Strait Islander peoples, people in rural and remote communities, people bereaved by suicide, people from culturally and linguistically diverse backgrounds, people being treated for psychiatric illnesses and who have been recently discharged from hospital, and people who have previously self-harmed or attempted suicide (Department of Health and Ageing, 2008). More specifically, older and younger men, people living in remote or rural areas, and Aboriginal and Torres Strait Islander people are considered to be most at risk (Department of Health and Ageing, 2008). Further, men who are undergoing traumatic life events, high work stress, or who are imprisoned may also face an increased risk of suicide.

Aboriginal and Torres Strait Islander male suicide prevention

Around the world, Indigenous people, especially youth, are vulnerable to suicidal behaviours. However, understanding of Indigenous suicide still remains limited to the point where effective prevention efforts may be hindered (Leenaars, 2006). Within Indigenous communities, suicide prevention must incorporate a holistic response

that not only seeks to address the more obvious risk factors but also the continuing impacts of post-colonial traumas; such issues are found in countries including Australia, Canada, the United States, New Zealand, Brazil, Greenland, and Siberia (Leenaars, 2006). In recent years, it has been suggested that suicide prevention initiatives which also seek to empower Indigenous communities in their implementation can lead to naturally sustainable resilience (Leenaars, 2006; McKay et al., 2009). Australia is seeking to develop suicide prevention strategies that specifically target the Aboriginal and Torres Strait Islander populations at both the national and state levels. One of the most recent examples is the Victorian Aboriginal Suicide Prevention and Response Action Plan 2010-2015 (Victoria Department of Health, 2010a).

Cultural appropriateness is important when designing suicide prevention efforts for Aboriginal and Torres Strait Islander communities (Kirmayer et al., 2009; Westerman, 2004). The programs need to be accepted by the communities in which they are to be implemented and programs need to be perceived as useful and offer resources for resilience. The Early Intervention Program for Aboriginal Youth was developed for schools in Western Australia. This program taught school personnel and community members how to identify Aboriginal and Torres Strait Islander youth at risk of self-harm; it also attempted to build resilience among the youth (Australian Institute of Family Studies, 2005). This program was developed under Aboriginal leadership and extensive consultations with the Aboriginal and Torres Strait Islander community meant that its needs were met. In Queensland, the Building Bridges Project incorporated Family Well Being

(FWB) and participation in Men's Groups with the aim of improving connectedness, capacity, and capability within and across the four participating communities, all of which sought to create communities that were more resilient to suicidal behaviours (Centre for Rural and Remote Mental Health Queensland, 2009; McKay et al., 2009). When Building Bridges was evaluated by the Australian Institute for Suicide Research and Prevention, community engagement and ownership were observed, especially within the Yarrabah community (McKay et al., 2009). The evaluation found that positive process-based changes occurred during the FWB and Men's Groups activities over the period of the program. While the Men's Groups were undertaken differently in different communities, all offered local men a safe place to talk about their feelings and feel respected and understood. Further, as it was created and developed by South Australian survivors of the Stolen Generation, FWB was not 'Westernised' but culturally appropriate and relevant to the communities. While its long-term effects were not as evident as those from the Men's Group, participants generally gave positive feedback. Another intervention offered in Building Bridges was the Health Information Technologies Network (HITnet) kiosks which were freely accessible in the communities. The goal was to improve health literacy where most people did not have internet access. These kiosks offered a variety of health information, with one module specifically on suicide prevention. The suicide prevention module incorporated interviews with Yarrabah locals and this community involvement effectively created an appropriate cultural context. Together, these efforts offered community

members pathways to greater connectedness, capacity and capability in creating more suicide-resilient communities.

Young Aboriginal and Torres Strait Islander people have also specifically been engaged. South Australia's Social Inclusion initiative and programs have connected Aboriginal and Torres Strait Islander youth with local community organisations for traineeships and other opportunities to improve their capacity to be a contributing member of the community (Government of South Australia, 2006). It has been argued that youth are more willing to seek help for their peers than themselves. In this way, activities such as team sports allow young people to look out for each other and, when given appropriate training, recognise potential warning signs in others (Rickwood et al., 2005). One example of this is the Kimberley-based Alive and Kicking Goals program (AKG). AKG raises awareness about suicide and its prevention using peer-education (founded by the local Broome Saints Football Club members) and incorporates skill-building, confidence and esteem-building, and leadership training (Broome Saints Football Club, 2011). Another approach for improving the mental wellbeing of Aboriginal and Torres Strait Islander youth is re-introducing them to their traditional culture; this includes visiting sites of cultural significance and learning survival skills from community elders (Yiriman Project, 2002). In addition, community involvement in the implementation of alcohol restrictions – for example, employing community-based field workers — can improve its results and subsequently help to reduce alcohol-related problems, such as suicidality (Brady, 2000).

Activities targeting men in rural and remote Australia

Many suicide prevention initiatives based in rural and remote Australia tend to address the issue of suicide indirectly through strengthening community networks (Kölves et al., 2012b). Judging their efficacy is difficult as there have been few evaluations and reports of results. However, some programs have proven to be sustainable over long periods of time, which implies at least a perceived usefulness for the community in question.

As services may be hard to access in rural and remote Australia, ACROSSnet was established to create easier access to general information related to suicide (open access for anyone), as well as restricted specialist material for healthcare workers (Penn et al., 2005). Specific high risk populations in rural and remote areas have also been targeted; miners are one such group. 'This place is doing my head in', a program by the Centre for Rural and Remote Mental Health Queensland, offers tailored mental health improvement and awareness services for those working in the mining industry (Centre for Rural and Remote Mental Health Queensland, 2011), however no data have been published on the effectiveness of such services. Farmers are another targeted group. During the most recent drought, the Drought Mental Health Assistance Package (DMHAP) was implemented in New South Wales to assist those affected (Tonna et al., 2009). The DMHAP had multiple components targeted at the community level, including: Mental Health First Aid training for local frontline agencies to reduce stigma and increase mental health knowledge, and community forums for the general public to discuss mental health issues related to the drought. The DMHAP focused on offering information and resources in

an acceptable and useful format and a booklet called 'Tackling Tough Times' was created for organisations wanting to improve their services to rural and remote customers, often farmers. Workshops for these organisations were also held, which looked at the types of services farmers required, and how to develop them, as well as encouraging and supporting networking between service providers. As a result, the Rural Mental Health Support Line was developed. This telephone service is available in immediate crises, as well providing a source of advice for organisations to better strengthen the content and delivery of their mental health services. DMHAP activities also appeared to strengthen existing resources according to local needs and forge new ties between operators in the field. While the experiences seem positive at these levels, there has yet to be an evaluation on the effectiveness of DMHAP to reduce the incidences or impacts of mental health issues or suicide.

Activities targeting young men

As examined earlier in this report, there appear to be great difficulties attached to help-seeking for young Australian men (De Leo and Heller, 2004b; Rickwood et al., 2005). For these reasons, Universal Interventions, as well as life skills training, implemented at schools and places of employment may be helpful, as the training is 'in their pathway' and not easily 'avoided' (Rickwood et al., 2005). Interventions conducted within these environments may help to reduce perceived stigma with mental health problems and possibly encourage these young men to become informal peer helpers. Further, results from a study on young male college students in the United States appeared to indicate that even moderate

level participation in sport can decrease the risk of suicide, when compared to the risk for those who did not participate in sport at all (Brown and Blanton, 2002). These findings may be connected to the beneficial effect of exercise on mood – young men may find feelings of competence and success especially important in terms of athletic prowess – as well as the social network and emotional and social support provided by the sporting team. Young people may also be more willing to seek help for their peers than themselves and peer-support activities can be effectively constructed within a sporting group environment. (This has been discussed previously in the report.)

For those not willing to seek direct face-to-face help, internet resources, such as Reach Out! Australia (Inspire Foundation, 2011) and *headspace* (National Youth Mental Health Foundation, 2011b) offer peer stories and information about mental health problems, including suicide. In addition, *headspace* also offers face-to-face counselling for young people at centres around Australia. The Reach Out! Website online game educational component Reach Out Central managed to attract young men to use the educational game function, but failed to improve their help-seeking behaviours or keep them engaged for longer periods of time (Burns et al., 2010). In another study assessing youth help-seeking after using Reach Out Central some improvements were seen, but the increase was much smaller for young men than for young women (Shandley et al., 2010). Effects on suicidal behaviours were not analysed. However, users were satisfied with the online format in both studies, and it was found that individual protective factors were somewhat enhanced (Burns et al., 2010; Shandley et al., 2010). Nevertheless, there is a danger that, in their online search for suicide

prevention tools, impressionable young people can inadvertently find pro-suicide sites which may encourage them to act on their impulses. Consequently, online resources need to be monitored at a national level to ensure they are both safe and of high quality (Becker et al., 2004).

Nevertheless, more indirect approaches may be taken to help decrease the risk of suicide in young males. In the United States, the Promoting CARE high school program offers personal risk assessment, teaches coping and management strategies for stress and anger, and improves personal and social resource skills (Hooven et al., 2010). These enhance young people's resilience and give them potentially naturally-sustainable resources for coping with life events in the future. This study found long-term improvements in the young people's experiences of depression and anger, while a low suicide risk status was maintained. In addition to teachers, parents can also be included in youth suicide prevention. Parents of children at high risk of suicide can help to improve self-esteem and confidence in their child by addressing difficult issues and, in turn, help to access the professional help and support needed (Pompili et al., 2010a).

Activities targeting elderly men

Elderly men also face a high vulnerability to suicide. In Queensland, a community awareness program 'Prevention is the Only Cure: Raising Awareness to Prevent Suicide in Older Men' was implemented during 2001-2002 (Bartlett et al., 2008). This program aimed to increase awareness about suicide and its prevention but also offered intervention tools that could be used by its target audience of caregivers and people close to being, or already, retired. Information

sessions were held about suicide and depression in older men, strategies to help men experiencing a crisis, and help-seeking resources. The results indicated that the majority of respondents had little knowledge of these topics beforehand but felt that the content was 'good' or 'excellent', and 'useful' or 'very useful'. Awareness was perceived to be important and 95% believed that awareness of suicide in older men should be raised by talking to people about it. Six months after the information sessions, many respondents knew at least one resource to contact if someone was suicidal: 47% indicated a counselling agency, such as Lifeline, and 17% indicated a GP. Nevertheless, the effects of the program on suicidality in older men were not evaluated and so it is unclear whether these positive impacts translated to practical changes. Further, the information session was designed to be specifically relevant for older, Caucasian, English-speaking men and it would need to be adapted for use in Aboriginal and Torres Strait Islander or culturally and linguistically diverse groups (Bartlett et al., 2008).

Negative feelings, such as isolation and worthlessness, can impact significantly in men's lives (Department of Health and Ageing, 2008). Several studies have been conducted in Japan examining the impacts of community involvement and isolation. It seems that engaging older men in group activity programs, such as volunteering, arts and crafts workshops, or sports, to improve their social connectedness can be more difficult than engaging older women (Oyama et al., 2005; Oyama et al., 2006c). These Japanese studies also indicated that community screening for depression and subsequent treatment programs reduced the risk of suicide in elderly women but not in elderly men (Oyama et al., 2006a; Oyama

et al., 2006b; Oyama et al., 2006c). However, in Japan, anonymity may be vital to avoid feelings of shame and to encourage elderly men to access these kinds of interventions. A study on community-based, and anonymous, depression workshops in Japan indicated that these seemed to reach elderly men and reduce their suicidality (Oyama et al., 2010).

In Australia, elderly men may have been neglected in terms of suicide prevention and more initiatives are needed to ensure their mental and physical wellbeing (Council on the Ageing, 2009). Men's Sheds are Australian community-based spaces where (older) men can work on different projects together, such as carpentry, which can ease feelings of isolation and offer an atmosphere of togetherness and friendship (Ballinger et al., 2009). Work of this kind may also prevent feelings of worthlessness, especially after retirement. In a small-scale study, eight men who visited one Victorian Men's Shed described feelings of recovered self-worth, being useful and needed for running the shed, or being able to help others by fixing things for them (Graves, 2001). The relaxed and informal nature of the Shed was appealing as these men liked their activities. They swapped skills with others, and, most importantly, did not want to feel like 'clients' or 'in need'. In this way, Men's Sheds also appear to be natural places for health education relating to older men (Graves, 2001) and could be adapted across different cultures. Increasing older people's awareness of depression and suicide in these types of safe environments can be empowering and lead to improved resilience. While no large-scale evaluations have been made, and effects on suicide rates have not been seen, individual participants have appeared to become more socially engaged and report

regained feelings of self-worth (Fildes et al., 2010). This kind of approach is beneficial in that men actively manage and improve their own health and wellbeing, and willingly communicate with their peers about health and other issues (Morgan et al., 2007). A similar approach is implemented by the Older Mens Network Incorporated (OMNI) which offers its members a friendly environment for socialising and knowledge sharing (Older Mens Network Incorporated, 2010). OMNI also endeavours to improve social connectedness and mental health but has not been evaluated.

Activities targeting men in their workplace

Men who work in some occupations appear to be vulnerable to suicidal behaviours. Indeed, in high-stress workplaces, confidential, no-cost employee assistance programs may be beneficial (Nakao et al., 2007). Easy access to fully-confidential help may encourage men to disclose suicidal intentions and gain support. If the use of counselling services is normalised within a workplace culture, or at least not condemned, help-seeking can be constructed as 'brave', rather than 'weak' or 'feminine'.

Construction workers have high suicide rates and Mates In Construction (MIC) is a Queensland-based organisation that targets (relatively young) male construction workers (Mates In Construction, 2011). MIC offers a confidential telephone helpline, arranges suicide awareness campaigns, and also trains peer-supporters to assist suicidal co-workers find help. An evaluation of the MIC program showed it was widely accepted by the building industry in Queensland, and that it increased suicide prevention awareness in participants, and improved knowledge of where to seek help and the preparedness to intervene if a fellow worker was in suicidal crisis in those

taking the peer-supporter training (Gullestrup et al., 2011).

Military veterans, especially those with frontline combat exposure, are potentially at a high risk of suicide, discussed previously in the report. Suicide risk can be exacerbated by other factors including substance use disorders, PTSD, mood disorders, or traumatic brain injury; these factors are even more potent when combined with access to, and ability to effectively use, a firearm (Bagley et al., 2010). In addition, young conscripts are at increased risk of suicide and efforts should be made to restrict their access to means and opportunities for self-harm (Rozanov et al., 2009). An all inclusive program for active personnel could be effective. This could take the form of selecting the most suitable individuals for the frontline, better training for superiors so they can recognise symptoms of depression and suicidality, and examining motivations behind people's military service (Gordana and Milivoje, 2007). Positive results have been shown from a gatekeeper program that more specifically targeted US Air Force personnel (Knox et al., 2003; Knox et al., 2010). This program was made available to more than five million US Air Force personnel between 1990 and 2002; 80% of these people were men. Perceived stigma and poor knowledge of mental health problems tended to prevent these people from seeking help and this stigma was especially targeted in this program. Persistent training of commanders, gatekeepers, 'care buddies', and all other personnel – as well as the allocation of resources to counselling and the strengthening of protective factors – resulted in a reduction in suicides, homicides, and family violence. The program focused on suicide prevention as a community effort rather than a medical problem

of the individual. One key aspect appeared to be the change from help-seeking being perceived as a sign of weakness to a show of strength and responsibility. These findings from the US Air Force could be implemented to reduce suicidality in similarly tightly-organised groups, such as the police or fire department. A similar approach with gate-keeper training was implemented in the Ukrainian military and suicide rates were also successfully lowered (Rozanov et al., 2002). While suicide rates did eventually increase it was not to the same levels found before the intervention. Finally, the ADF implemented the ADF Suicide Prevention Program (SPP) as one of the key initiatives of the ADF Mental Health Strategy (MHS) in 2002 (Department of Defence, 2010). The ADF SPP consists of three arms: prevention, intervention, and postvention. The prevention arm includes ADF Suicide Awareness Induction Training and ADF Suicide Literature and Online resources. The intervention arm consists of Keep Your Mates Safe (KYMS) Suicide Training, Applied Suicide Intervention Skills (ASIST) Training, the All Hours Support Line (ASL), Clinical 'upskilling' for ADF mental health professionals, and Risk Assessment and Management. Post Event Support and Reviews and ADF Suicide Database are components of the postvention arm. Further, there are other supporting mental health activities such as the ADF Psychological Selection Model (Screening), BattleSMART Psychological Resilience Training, and the Alcohol, Tobacco and Other Drugs Program (Kölves et al., 2012c). The Department of Veterans' Affairs also offers training, rehabilitation and life skills, health education such as 'Changing the Mix – Alcohol Correspondence Program', various suicide prevention workshops through Operation Life, and a helpline for veterans

and their families (Department of Veterans' Affairs, 2011).

Activities targeting gay and bisexual men

While research remains limited, existing evidence suggests that gay and bisexual men experience great vulnerability to suicidal behaviours. Limiting the negative effects of discrimination, and experienced or perceived stigma resulting from sexual orientation, may decrease men's likelihood for depression and isolation and, subsequently, suicide risk (McDaniel et al., 2001). Young, sexually-active homosexual men should be especially targeted in prevention efforts, as this group appears to be most at risk. Peer support appears effective where life experiences of peers are shared to offer examples of coping and resilience. A peer approach has been adopted by many helplines that offer counselling by same-sex orientated peers. The Gay and Lesbian Counselling and Community Services of Australia offers helplines in all states (Gay and Lesbian Counselling Service of NSW, 2004). These services have not yet been formally evaluated to measure their effectiveness in assisting persons with suicidal behaviours.

Help for men who have been bereaved

Older men who have been bereaved and widowed appear to have more than five-times the risk for suicide than their married counterparts (Li, 1995). Men appear to deal with the stress of being bereaved far less effectively than women, especially the loss of a spouse (Agerbo, 2005). They may not have the necessary social networks for dealing with grief and loss. The grief experienced after a suicide is a slow and often incomplete process, where survivors should be allowed to determine

their own pace rather than feel pressured to solve issues quickly (Ness and Pfeffer, 1990). Family GPs, who know the survivor and deceased, may be able to provide help to the bereaved but specialist psychiatric care may be needed in some cases (Hawton and Simkin, 2003). There is little evidence available on the efficacy of counselling interventions. However, those bereaved by suicide appear to respond well to peer support from other survivors, and, therefore, interventions which bring survivors together could be beneficial (McMenamy et al., 2008). In addition, there is no formal evidence of the effectiveness of crisis lines and internet resources. Specialised 24-hour bereavement response interventions, such as the StandBy Response Service (SupportLink Australia, 2011) have indicated some efficacy in preliminary analysis (The Science of Knowing, 2011).

Key Messages

- Aboriginal and Torres Strait Islander suicide prevention efforts need to be culturally appropriate and incorporate culturally significant aspects to effectively reach their target audience.
- Accessing care and support may be difficult in remote and rural Australia. Forging ties and networks between service providers improves service coverage and availability, and online resources may provide fast initial help in crisis.
- The mental (as well as physical) wellbeing of young men can be improved through activities attractive to this target group such as sport, where peer-to-peer support can work well.
- Older men may benefit most from suicide prevention efforts that allow them to be more social and spend time with, and talk to their peers, as well as doing things that make them feel more useful to the community.
- Workplace culture needs to be changed so that help-seeking is seen as brave, rather than as a sign of weakness. Crisis services should be confidential to avoid stigmatisation and thereby creating barriers to help-seeking.
- Gate-keeper training in high-stress and high-risk workplaces appears beneficial for detecting persons who might be at risk of suicide and for supporting them in help seeking.
- Gay and bisexual men are at increased risk of suicide due to issues, including discrimination and feelings of isolation, and would benefit from peer support.
- Peer support appears to be beneficial when dealing with loss and grief.
- None of the programs presented in this chapter have provided evidence of reducing numbers of suicidal behaviours, and there is need for more rigorous evaluation.

Treatment

Symptom Identification and Early Treatment

While many people have experiences that constitute risk factors for suicide, not all these people will attempt suicide (Knox et al., 2003). In this way, early intervention becomes extremely important as decreased functioning and interpersonal stress may indicate potential suicidality long before a person acts in a suicidal manner. However, Early Treatment within suicide prevention programs and services is only possible when combined with effective Symptom Identification. Yet, these two domains remain distinct as Early Treatment is the first professional contact with health care. With the right training, Symptom Identification can be performed by anyone within the general population (Department of Health and Ageing, 2008).

Suicidality can be more reliably predicted in persons with certain mental illnesses compared to the general population (Rihmer et al., 2002). Among depression sufferers, suicidal actions are more likely to occur during a later stage of the illness, which provides an opportunity for Symptom Identification and Early Treatment before this drastic outcome (Rihmer et al., 1995). Currently, clinical assessment by a medical professional remains the most reliable way to detect suicidality (Links and Hoffman, 2005; Mann and Currier, 2007). Consequently, a professional's assessment skills need to be constantly updated to remain an effective suicide prevention method. However, it should be noted that screening methods can only identify whether patients are at an increased risk of suicide, not predict their potential specific suicidal acts (Kene-Allampalli et al., 2010). Generally, long-term prediction is

difficult. However, in specific high-risk groups like male inmates, a screening conducted on their entry into prison predicted their risk of suicide in the short-term (24 months) and long-term (120 months) (Naud and Daigle, 2010). However, the same diagnostic criteria may not be applicable for detecting depression in both men and women. Compared to female depressive symptoms, it appears that the 'male depressive syndrome' tends to include decreased stress tolerance, aggressive behaviour and acting out, reduced impulse control, antisocial behaviour, hereditary depressive illness and thinking, substance abuse, and suicidality (Rutz et al., 1999).

Screening tools

Suicide screening methods also face the problem that suicide can be a rare occurrence. This makes it likely that any screening method may only have a low positive predictive value (0.3-3%); the identification of a large number of false positive cases can create undue distress and cost (Gaynes et al., 2004). It has been argued that screening for negative aspects of suicidality, such as depression and hopelessness, needs to be complemented with screening for protective factors to better specify the risk (Nelson et al., 2010; Osman et al., 2002). However, while protective factors counter risk factors, they can be more abstract and difficult to quantify compared to factors like depression (Osman et al., 2002). However, screening for these protective factors may be beneficial for older men as they positively frame experiences; for example, specifically asking about 'reasons for not taking one's life' (Edelstein et al., 2009). However, suicide assessment tools seem to face two problems: the tools do not offer practical advice on the type of treatment to utilise,

and the assessment may be inaccurate (Nelson et al., 2010).

The Gotland Male Depression Scale, a male-specific screening tool, was developed around the different characteristics of male depression and behaviours. It has been tested on Danish men suffering from alcohol abuse disorder (Zierau et al., 2002) and male psychiatric inpatients in Italy (Innamorati et al., 2011). From these studies, the Gotland Male Depression Scale has been shown to be useful for measuring suicide-related symptoms of depression in men, although results must be considered preliminary (Innamorati et al., 2011). Another male-specific tool – the Masculine Depression Scale – incorporates items such as sexual difficulties, power concepts, and fulfilling other people's expectations (Magovcevic and Addis, 2008). However, its efficacy has not been sufficiently evaluated at this time.

Screening methods must also be appropriate and relevant for the different cultural contexts in which they are used. The Westerman Aboriginal Symptom Checklist – Youth (WASC-Y) – was developed in Western Australia to better assess anxiety, depression, self-esteem, and suicidal behaviours among Aboriginal and Torres Strait Islander youth (Westerman, 2004). However, it must be noted that who administers the tool can be just as important as the actual tool itself. While appropriate tools may be better administered by Aboriginal and Torres Strait Islander health workers (Westerman, 2004), resource scarcity among other high-risk groups may affect the use of assessment tools. For example, in Austrian prisons, a suicide screening tool administered by guards, rather than psychiatric/psychological professionals, is currently being evaluated (Frottier

et al., 2009). Although a few false positives have been indicated, there have been few false negatives. However, simple assessments can also be undertaken. It has been argued that the risk of suicide in depressed people may be assessed by asking about their close family history of suicide, given that depression can run in families (Torzsa et al., 2009).

Men should be approached in a less medicalised manner that does not feel too much like they are in a doctor's office, and possibly, for these reasons, the Western Australia program 'Pit Stop' has been well received among men (Western Australia Country Health Service, 2006; Western Australia Country Health Service, 2008). In this program, a mobile team undertakes a series of 'pit stops', evaluates aspects of men's health in a non-formal setting, such as during local events. For example, 'Shock Absorbers' covers mental health issues and 'Fuel Additives' covers the use of alcohol and other drugs. While humorously framed, the goal of this program is to get men who fail a 'pit stop' to talk about relevant issues. This kind of approach could be more widely adapted for other mental health screening and suicide prevention initiatives, but its effectiveness should be tested.

Gatekeepers

Previous research has suggested that gatekeeper education and training can be an important aspect of community-wide suicide prevention (Beautrais et al., 2007; Isaac et al., 2009). Gatekeepers are people, not necessarily healthcare professionals, who have been trained in suicide awareness and have the knowledge and ability to recognise and address suicidal symptoms in others and assist in their help-seeking (Beautrais et al., 2007). As mental health problems are fairly common, anyone

in the community can expect to meet a person with these problems and potentially be in the position to help them (Jorm et al., 2005a). It may be easier for a person dealing with sensitive issues, such as depression and suicidality, to initially talk about them in a more informal way (May et al., 2005). However, an Australian survey found that approximately one-third of respondents did not consider these gatekeeper actions as a means to help someone suffering from mental health issues (Jorm et al., 2005a). It appears that encouraging people to talk to each other and educating them in ways to assist others' help-seeking should be targeted more in awareness campaigns. Another Australian study found a clear need for greater education on youth suicidality targeted to high school teachers and GPs (Scouller and Smith, 2002). While knowledge about youth suicidality appeared somewhat limited, this study found that teachers and GPs were interested in, and had positive attitudes about, training in this area, which confirmed their potential as gatekeepers. Within the Australian population, it has been suggested that attitudes of 'needing to deal with problems on your own' have decreased and positive help-seeking attitudes have increased. In one study, these changes have been attributed to awareness programs (Jorm et al., 2006b). While both healthcare professionals and members of the general population can undertake gatekeeper training, it appears to especially improve the confidence and capability of community members to intervene in a suicidal crisis (Matthieu et al., 2008). It has been argued that these improvements are more likely due to the skills being more 'novel' for the general population. Increased awareness and knowledge of suicide can help to create resilience within a community.

Within the military, gatekeeper training has appeared to improve suicide literacy and may have positively impacted on rates of suicide. Similarly, gatekeeper training undertaken in NSW Aboriginal communities has improved participants' willingness to seek help for others, although help from within the community was preferred (Capp et al., 2001). Consultation with Aboriginal and Torres Strait Islander community elders during crisis situations is vital and their advice should be incorporated into community-based gatekeeper training.

Given that not all suicidal people will visit a healthcare professional, training community members to recognise and give mental health 'first aid' may be a beneficial intervention, especially if they share their knowledge with others (Kanowski et al., 2009; Kitchener and Jorm, 2004; Kitchener and Jorm, 2008). However, these programs need to be culturally appropriate and relevant. An Australian training program, Mental Health First Aid (MHFA), has been used to train both Aboriginal and Torres Strait Islander and other Australian community members to improve their attitudes and knowledge about suicide and their ability to help others. Further, the Aboriginal MHFA has recently been updated in consultation with Aboriginal and Torres Strait Islander mental health experts to better reflect cultural context (Hart et al., 2009). In addition, its e-learning package also makes MHFA accessible to wider audiences in rural and remote Australia (Jorm et al., 2010). Indeed, MHFA appears to be a useful training tool for people, such as football coaches in rural areas, who may be in a good position to reach young men (Pierce et al., 2010). Other studies have also looked at the benefits received by farmers who undertake MHFA training (Sartore

et al., 2008). Most farmers are men and they face hardships attached to both their rural location, such as limited access to health professionals, and masculine ideals, such as stigma about help-seeking. In farming communities, MHFA trained financial advisors, government officials, support workers, and others may be in a unique position in detecting suicidal behaviours compared to mental health professionals. Farmers may be more likely to open up to these other people and their ability to detect mental health problems can be an important resource in assisting farmers find help. Further, this sort of training may help in the formation of truly local networks with people who know the area, local conditions, and resources. However, more long-term evaluations of MHFA, which examine retained knowledge and capability within these different environments, are necessary.

Another community-focused suicide prevention training is LivingWorks, which includes safeTALK and ASIST participatory workshops (LivingWorks, 2010). safeTALK teaches people how to be alert to, and recognise, suicide warning signs and subsequently link them to professionals for further care. ASIST teaches people how to become community gatekeepers and caregivers for those experiencing suicide crises including reviewing suicide risk and keeping people safe while other care is arranged.

In school settings, reducing active suicidal ideation and planning in young men can be facilitated by ensuring the at-risk student is not left alone until professional help is obtained (King, 2001). In this study, follow-up from school staff was necessary to ensure the student was properly engaged in treatment. In this way, the student still felt connected to the school community, which may

have had a beneficial impact on their recovery. If a suicide does occur, appropriate postvention must also be implemented, such as counselling offered to minimise any trauma and to prevent potential copycat behaviours. Care must be taken to ensure that, as young people can be more vulnerable to suicide clustering compared to other age groups, they are not left vulnerable (Hazell, 1993).

Crisis helplines and internet resources

Telephone helplines have been available, and used by many callers, for decades. However, results from the few evaluations on their efficacy in preventing suicide have been conflicting (Krysinska and De Leo, 2007), although surveys of both customer and counsellor satisfaction with telephone helplines have tended to result in positive comments and opinions. A fairly new addition to counselling services are online chat and forum sites where users can be anonymous. There have been no evaluations of their effectiveness as of yet. In Australia, general telephone helplines offer confidential counselling to anyone in crisis. Such services include: Lifeline, the Salvation Army Hope Line, Samaritans Crisis Line, Life Bereavement Support Crisis Line, Rural Mental Health Support Line, and KidsLine. More specialised helplines include: SuicideLine, the Suicide CallBack Service, the Australian Defence Force All Hours Support Line, and the Veterans' and Veterans' Family Counselling Service. Lifeline has also established an online live one-on-one chat (Lifeline, 2011), which is currently being evaluated. In addition, Suicide Call Back Service is currently trialling an Online Counselling service, enabling persons not comfortable talking on the phone or face-to-face to have up to six counselling sessions online through the service website

(Suicide Call Back Service, 2012). *Eheadspace* offers young persons (aged 12-25) an online counselling chat, and an opportunity to email a counsellor for a professional reply (eheadspace, 2012). There are other sources, but these do not specifically target suicidal behaviours (see www.mindhealthconnect.org.au). Some Australian helplines focus on male clients who may be at risk of suicide. MensLine Australia has a 24-hour crisis telephone service and an online discussion forum for general discussions (MensLine, 2010). Dads In Distress offers a crisis telephone helpline for men who are separating from partners (Dads In Distress Support Services, 2011). The Sexual Assault Resource Centre (SARC), in Western Australia, offers a 24-hour crisis line for men who have been sexually assaulted or abused (Western Australia Sexual Assault Resource Centre, 2009). Another service in Western Australia, the Men's Domestic Violence Helpline, offers crisis support for men who are concerned about domestic violence (Western Australia Department of Child Protection, 2010).

Suicide risk assessment and management protocols

Many state governments have developed suicide risk assessment and management protocols, guidelines, and step-by-step frameworks targeting people who present at various health facilities (New South Wales Department of Health, 2004), as well as training for relevant staff (South Australia Department of Health, 2011; Western Australia Department of Health, 2008; Victoria Department of Health, 2010b). While any facility can be the point of contact for suicidal individuals, many people at-risk of suicide present at hospital Emergency Departments (EDs). However, men

may feel that an ED is the 'last resort' when feeling hopeless and suicidal (Strike et al., 2008). Some EDs have developed special 'safe rooms' for suicidal patients but men can feel isolated and liken the experience to being 'punished' in solitary confinement. These feelings can be especially exacerbated if the man has voluntarily come to the hospital for help. In these situations, men can feel even more isolated and alone, and these feelings can adversely impact upon subsequent suicide interventions. In this way, the experiences of suicidal people need to be incorporated into suicide prevention policies at a government level to ensure their relevance, appropriateness, and effectiveness. Evaluations are also important to ensure coherence of policies (Department of Health and Ageing, 2005; Queensland Department of Communities, 2008).

Training for professionals

It has been argued that when medical practitioners and primary care nurses are trained to better recognise and treat the symptoms, this positively impacts upon rates of suicide (Mann et al., 2005; Beautrais et al., 2007; Rutz et al., 1997). An inability to recognise symptoms could be connected to the potential under-diagnosis of depression, especially in men (discussed in a previous section). Further, those health professionals, such as nurses, who frequently care for suicidal patients consider that education programs are necessary (Chan et al., 2008). However, it appears that suicide prevention education may need to be a continual process as knowledge retention remains uncertain. A Japanese study found that, six-months after training, participants did not remember what they had previously learned (Kato et al., 2010). The length of the training may also be a factor here.

Another issue that should be addressed is the need for concrete, practical advice on how to transfer theory into effective interventions (Ramberg and Wasserman, 2004). Training needs to be widespread in its application, so that organisations do not rely on a single person, and continuous so that knowledge remains up-to-date. It has been suggested that, as the different criteria for the proposed distinctive 'male depressive syndrome' are clarified, this new knowledge can then be disseminated through training (Moller-Leimkuhler, 2002; Rutz et al., 1997). However, workloads of health professionals also need to be considered in conjunction with education and training. These services need to be both easily accessible and time-efficient. As previously discussed, ACROSSnet has restricted online pages available for registered rural mental health professionals to help them update and maintain their knowledge of current research and recommended practices (Penn et al., 2005).

Visits to a General Practitioner (GP)

GPs can play a vital role in suicide prevention. Large studies in many countries, including Australia, have indicated that a lack of continuous care, poor communication, and imprecise assessment may be the main reasons hindering prevention efforts in a clinical setting. GPs who ask their patients about suicidal ideation can begin the process for treatment and prevention (Goldney, 2005). Indeed, research indicates that Australians who have attempted suicide appear to have preferred communicating with their GP than with other healthcare providers (De Leo et al., 2005). Furthermore, people in rural Australia may be less likely to trust specialists, such as psychiatrists, and consequently prefer dealing

with their local GP about mental health problems (Griffiths et al., 2009).

A review of previous overseas studies has shown that many people who die by suicide have visited a primary healthcare provider in the year before their death: up to 100% of women and 78% of men (Luoma et al., 2002). Those who die by suicide are more likely to visit a primary healthcare physician (over 75%) than a mental health specialist (about one-third). Another study found that about 40% of patients hospitalised for a suicide attempt had visited their GP in the week prior to their act; two-thirds of these attempters had seen their GP in the month prior to the act (Voros et al., 2009).

Therefore, GPs can be an important avenue for intervention as they can begin to address those issues with patients who would not be willing to see a specialist at least initially (Voros et al., 2009). However, simply asking about suicidal ideation may not always lead to identification and people with suicidal ideation may see their physician prior to a suicide attempt without disclosing their intent (Feldman et al., 2007). It appears that unless a patient shows significant signs of depression, or specifically asks for antidepressants, only about one-quarter of these depressed patients are asked about potential suicidal ideation. Issues with disclosure were also demonstrated in a study which examined a sample of 100 young, Caucasian suicide attempters who had predominantly used drug overdose (Hall and Platt, 1999). In this study, 69% of these attempters admitted to having no previous ideation or plan before their act. In a Finnish study, only 10% of the men who saw a GP in the month prior to suicide communicated any intent (Isometsä et al., 1995). It appears that men may be more reluctant to discuss sensitive issues,

such as depression or suicidal ideation. However, one study found that when men waiting to see a GP were asked to complete a 'prompt list' asking these sensitive issues, they were more likely to talk about them (Brownhill et al., 2003). However, it is still uncertain whether suicide prevention initiatives based in primary care services adequately reach the most vulnerable populations, including younger men. It should be noted that a Western Australian study found that suicide attempters who had visited a GP had tended to discuss somatic symptoms rather than psychological distress (Pfaff et al., 1999).

Typically, Australian men appear to keep things to themselves, act on rather than talk about their experiences, and expect a GP to intuitively detect their symptoms of depression or suicidality (Brownhill et al., 2002). These patterns can make identifying suicidal males difficult. However, within a different culture, a Finnish study examined whether GPs could assess suicidality by interviewing their patients (Holi et al., 2008). This study found that deliberate self-harm was difficult to separate from true suicidal acts; in this way, self-harm could mask suicidality. At times, suicidality appeared to be very difficult to detect as another Finnish study found that 83% of healthcare professionals were surprised that a patient suicided (Saarinen et al., 1998). However, GPs may also feel that they do not have the expertise to treat issues concerning mental health or suicide. Further, there may not be enough resources for formal training (Saini et al., 2010).

Gender differences are also found in these studies. In the much quoted Gotland study, training for GPs on the diagnoses and treatment of depression led to a marked reduction in suicide

rates but only observed in females (Rutz et al., 1997). Male suicide rates, for death by violent or non-violent methods, did not reduce. However, these results may have been influenced by the fact that only 20% of male suicides had visited a GP, compared to 60% of female suicides, which means that males were less likely to be diagnosed and treated. Compared to female suicides, male suicides were also more likely to have experienced substance abuse and legal issues; female suicides were more likely to have been prescribed antidepressants. Similar impacts on suicide rates were observed in a controlled Hungarian study, with only female suicide rates decreasing after GP training (Szanto et al., 2007). An Australian pilot study, funded by *beyondblue*, developed a training program for GPs to better detect depression and suicidality in male patients (Blashki, 2008). The program improved GP awareness and confidence but had little effect on their skills, at least in the initial evaluations.

From Early to Standard Treatment of suicidality

As examined throughout this chapter, the treatment and care of suicidal people moves along a continuum. When this continuum of care is maintained, patients are more likely to receive coordinated and coherent treatment. However, suicidal risk must be first identified in patients so that relevant care can be found for them (Mann and Currier, 2007). Any history of suicidal behaviour must be analysed as part of the risk assessment. A person who has previously become suicidal in the face of stress or trauma may be vulnerable to the same behaviours in the future. Suicidal ideation, especially when the individual has formulated clear plans, can be a warning sign. When assessing a

person's suicide risk, issues including substance abuse (especially when combined with mental illness), recent discharge from psychiatric care, family history of suicidal behaviours, impulsivity, and aggression also need to be considered. As examined above, while hospitalisation may initially be the most appropriate care for people at imminent risk of suicide, follow-up care needs to be considered in terms of regular contact and adherence to treatment. Including family or friends within these care procedures may also enhance understanding and social connectedness. This may be especially important with men who feel more comfortable confiding in partners and friends, as discussed previously. An Australian study has demonstrated that, compared to women, men are 2.3 times less likely to go to hospital

following a suicide attempt. Indeed, they may only go if pressured by others (De Leo et al., 2005). However, after a suicide attempter receives care from the hospital, a comprehensive management plan appropriate to their needs should be implemented, with referrals and reassessment at different stages (New South Wales Department of Health, 2004). In Hong Kong, a supportive care project, which incorporated early identification and subsequent referral, appeared to help older women, but older men did not appear to be helped in the same way (Chan et al., 2011). However, as examined previously, male help-seeking tends to be problematic, with fewer suicidal men presenting to healthcare professionals than suicidal women. As a result, men may risk being overlooked by the health system (Deisenhammer et al., 2007).

Key Messages

- General large-scale population screening for suicidality is not advisable because of the high rate of false positive results with current questionnaires. However, screening tools can be useful in high-risk groups and as aids for diagnosing people with suspected depression and suicidal ideation.
- Male-specific depression and/or suicidality screening tools are fairly new, and there is little evidence of the usefulness of their as yet. Men may respond most favourably to informal screening tools and to humour. Any screening tools must be culturally appropriate to yield reliable results.
- Professional or peer gatekeepers who have been trained to spot and approach individuals in suicidal crisis have been shown to effectively facilitate help-seeking and reduce non-fatal suicidal acts.
- Help from within the community or a peer group may be preferable to contacting professionals. Programs such as ASIST or Mental Health First Aid that teach people to become gatekeepers and assist others in seeking help can be useful for the wellbeing of individuals and the community.
- Telephone or online services are important resources for people in acute crisis, especially for those living in rural or remote areas, those who prefer anonymity and who may be reluctant to seek help. They can also aid in initiating professional help-seeking, but evaluations are needed to assess these effects.
- Australian states and territories have developed their own suicide risk assessment and management protocols and training for relevant health care staff to achieve better outcomes for suicidal patients. Management protocols should also address continuity of care and required follow-ups.
- Regular updating of knowledge about current recommended practices for recognising and helping suicidal patients is important for quality of care and to improve the confidence of health care staff in caring for such patients.
- Many Australians prefer to talk to their GP about mental health issues, and many people who later complete suicide visit a GP in the months or weeks before death. Consequently, GPs are in a good position to initiate appropriate treatment.
- Training GPs to better recognise and treat depressed individuals has been shown to reduce suicidality in female subjects of Gotland, Sweden. However, men are harder to reach and engage in discussions than women, and no such effects have been shown in male patients.

Standard Treatment of suicidality

Psychotherapies

Treating psychiatric illness effectively may result in a reduction of suicidal behaviours (Bertolote et al., 2003). As a result, a number of different psychotherapeutic approaches have been developed to help people with suicidal behaviours. However, as discussed in Chapter 6, shortcomings in male help-seeking behaviours and lack of adherence to therapies offered may present obstacles in the prevention of male suicidal behaviours. Consequently, better understanding these obstacles can help to overcome them (Sakinofsky, 2007b).

Before discussing widely-practiced psychotherapeutic approaches, it is important to note that many studies examining the effectiveness of psychological therapies for deliberate self-harm and suicide have several methodological limitations. These include a lack of randomised clinical trials and small sample sizes that often exclude high-risk suicide cases (Hawton and Sinclair, 2003; Hawton et al., 1998b; Rudd et al., 2009; Linehan, 1998). For ethical reasons, studies have often not had control groups, or control groups have not been properly defined (Rudd et al., 2009; Beskow et al., 2009; Hawton et al., 1998b; Hawton and Sinclair, 2003). Most studies have only involved female patients or, when the study group has included men, they have been in the minority (Rudd et al., 2009). Despite the empirical evidence of gender differences in psychiatric diagnoses and symptom expressions (Moller-Leimkuhler et al., 2004; Sansone and Sansone, 2011), and the fact that men die by suicide three – to ten-times more often than women (Rutz and Rihmer, 2009), there remain few studies that examine gender differences

in psychological disorders and the impacts of psychotherapies (Parker et al., 2011; Sigmon et al., 2007). Therefore, based on currently available evidence, determining the efficacy of currently practiced therapies, particularly focusing on the male population, is very difficult. In spite of these challenges, some therapeutic approaches, mainly those based on cognitive treatments, have shown positive indications in the reduction of suicidal behaviours (Rudd et al., 2009; Hepp et al., 2004; Tarrier et al., 2008).

Cognitive Therapy (CT) proposes that cognitive distortion (dysfunctional thinking) can negatively influence an individual's interpretation of life events. When such dysfunctional thinking is negative and automatic, the individual is likely to develop a sense of hopelessness and depression, which may subsequently lead to the development of suicidal thoughts. CT is thought to facilitate the development of new ways of thinking, knowledge, and skills that are more effective and more life-affirming, in dealing with difficult life situations (Beskow et al., 2009). Brown et al. (2005) conducted a randomised-control trial comparing a CT group (10 weekly or bi-weekly sessions) and a control group (usual clinical care and case management) using both male and female patients who had attempted suicide. The study found that the CT group was 50% less likely to attempt suicide during the 18-month follow-up period. However, the study did not report on gender differences (Brown et al., 2005).

Cognitive Behavioural Therapy (CBT) and CT are often described as the same psychotherapeutic approach as they both place a strong emphasis on cognition and its influence on emotions and behaviours. CBT conceptualises suicidal

behaviours as a manifestation of interactions between dysfunctional thoughts, mood, and behaviours (Rudd et al., 2009). Similarly, another CBT-oriented treatment, Problem-Solving Therapy, assumes that poor problem-solving ability may lead to thoughts of hopelessness, which can subsequently result in the development of suicidal ideation (Beskow et al., 2009; Townsend et al., 2001). Consequently, both CBT and Problem-Solving Therapy are problem-focused interventions based on a collaborative approach where the therapist and patient work together to identify the patient's problems and strengths and to develop better problem-solving skills to deal with life problems (Rudd et al., 2009).

Dialectical Behaviour Therapy (DBT) is a cognitive treatment specifically developed to reduce self-harm and suicidal behaviours in individuals with Borderline Personality Disorder (BPD) (Stanley and Brodsky, 2009). The underlying principle of DBT is Linehan's biosocial theory of BPD (Linehan, 1998). This theory argues that an individual's difficulties in regulating emotion and behaviour are the result of interactions between an invalidating rearing environment and a biological tendency toward emotional vulnerability (Lynch et al., 2007). In DBT targeting self-harming and suicidal individuals, the therapist particularly focuses on resolving dialectical tension. That is, self-harming behaviours can be both functional (behaviours that help the individual reduce distress) and dysfunctional (behaviours that cause negative health effects and interpersonal functioning, and are associated with an increased risk of suicide). Therapists resolve this tension by validating the need to relieve distress while facilitating the development of skills that function to reduce such distress (Lynch et al., 2007). DBT is perceived to be

an intense therapy and requires at least six months of treatment with regular monitoring of suicidal behaviours. However, it is important to note that men with BPD are more likely than women to utilise drug/alcohol rehabilitation services but less likely to utilise pharmacotherapy and psychotherapy services (Goodman et al., 2010).

While the above-mentioned therapies are all CBT-oriented, a recent review paper by Tarrrier et al. indicated that the overall length of these treatments showed considerable variation. CBT and Problem-Solving Therapy were delivered over 2 – 3 months, while DBT took up to 12 months (Tarrrier et al., 2008). In terms of overall effectiveness, the study concluded that CBT, including CT treatments, demonstrated a significant effect in the reduction of suicidal behaviours, particularly for adults and those who participated in individual sessions (Tarrrier et al., 2008). A paper examining psychotherapies for youth indicated that DBT and CBT treatments were effective in the reduction of self-harm and suicidal behaviours (Robinson et al., 2011; MacGowan, 2004). The most successful interventions for young people often include the family in the therapy, or involve group sessions with peers (MacGowan, 2004). A number of clinical trials on DBT, conducted in countries such as the United States, Germany, and the Netherlands, have demonstrated a significant reduction in self-harm and suicidal behaviours in individuals with BPD (Stanley and Brodsky, 2009). In addition, problem-solving treatment in deliberate self-harm patients has generally demonstrated positive results in the reduction of self-harming behaviours, although for many of the studies the effects did not reach statistical significance (Hawton et al., 1998b; Townsend et al., 2001).

Previous research examining participation in outreach programs – an example of which is home visit counselling – have indicated better treatment compliance. However, no strong evidence supports their effectiveness in the reduction of suicidal behaviours (Hawton et al., 1998b). Furthermore, Guthrie et al. (2001) conducted a randomised control trial of psychodynamic interpersonal therapy involving both male and female participants. The therapy group received four psychodynamic interpersonal therapy sessions at their home, while the control group received general follow-up psychiatric outpatient treatment. The study found that the therapy group showed a significant decline in self-harming behaviours and suicidal ideation. No gender difference was reported (Guthrie et al., 2001).

Rudd et al. (2009) reviewed 53 clinical trials (all of which consisted of both treatment and control groups) and examined the common features of those therapies which were shown to be effective. They concluded that a reduction in suicidal behaviours is more evident when treatments directly address these behaviours rather than indirectly by targeting the associated psychiatric disorder (Rudd et al., 2009). However, the evidence of the effectiveness of psychosocial interventions in preventing suicides following self-harm is quite meagre (Crawford et al., 2007). There is a relatively small number of studies which have looked at the effects of these interventions, and not all the results have been published (Comtois and Linehan, 2006). Despite these challenges, it is important to ensure that psychological interventions are available to people who are most vulnerable to suicidal behaviours as untreated mental illness can place people at greater risk of suicide, compared to those receiving treatment (Law et al., 2010).

As stated previously, no studies have specifically focused on the effects of psychotherapies with suicidal men. However, a recent Australian review of international literature found no clear evidence of gender differences on the efficacy of either CBT or Interpersonal Therapy (IPT) in depressed patients (Parker et al., 2011). A study that examined men's help-seeking attitudes towards emotion-focused counselling and cognition-focused counselling found that, regardless of the counsellor's technique, male participants who were exposed to emotion-focused counselling were less willing to seek psychological help (Wisch et al., 1995). Indeed, it can be hypothesised that men respond better to more practical, problem-based therapy applications. However, the scarcity of relevant literature means no clear conclusions can be drawn.

In a US study, men who conformed more to the stereotypical masculine role appeared to expect the counsellor to be an expert and provide the empathic part of therapy. They perceived their own role to be passive, not that of an active participant (Schaub and Williams, 2007). On the other hand, not all men in the study adopted such a role; some men expected to be active. These findings imply that counselling should be tailored to suit both these types of male patients. Men can benefit from therapeutic treatments, but the potentially different ways in which they act out their depression need to be better understood by healthcare professionals (Rutz and Rihmer, 2007). They need to be supported within an appropriate treatment framework as their aggressive behaviours have the potential to be directed outward (e.g., homicide) or inward (e.g., suicide).

However, problems with treating a suicidal person can arise for several reasons. If several therapists are involved in the treatment, communication

can break down; further, the patient, or family, may overtly control therapy decisions against the therapist's better clinical judgment (Hendin et al., 2006). This study also suggested that therapy was more likely to be successful if sexual dysfunction was appropriately addressed, which may be especially important for male patients. As examined previously, treatment can also be negatively affected if co-morbid conditions, such as alcohol abuse, are under-treated.

Pharmacological Treatment

There are few randomized clinical drug trials that have systematically and prospectively investigated suicide as an end point or outcome measure, therefore formal evidence of efficacy of pharmaceuticals in reducing suicidal behaviours is limited (Mann et al., 2005). More specifically, there is limited evidence regarding the effects of currently existing antidepressants on suicide risk reduction (Pompili et al., 2010b; Safer and Zito, 2007). However, by reducing depression, antidepressants generally appear to reduce suicidal ideation in adults at the individual level (Pompili et al., 2010b).

In Australia, overall, antidepressant use increased markedly between the years 1991 and 2000 but the average suicide rate did not decrease (Hall et al., 2003). This may be due to the increase in young male suicide rates during the same period; older people were most exposed to antidepressants and, while their suicide rates declined, it was not enough to influence the average rate (Hall et al., 2003). Furthermore, some psychopharmaceuticals have themselves been linked to increased suicidal ideation or behaviours, which may increase the suicide risk of an already vulnerable population (Fergusson et al., 2005; Gunnell et al., 2005c;

Pompili et al., 2010b). Therefore, high quality psychological/psychiatric care is of paramount importance to monitor suicidality in people who have been prescribed antidepressants, particularly because these drugs can be used in suicide attempts. In a Western Australian sample, about 34% of suicide attempters who overdosed used medicines obtained from their GP for their attempt, 13% from a psychiatrist or mental health clinic, and 53% from other sources such as a pharmacy (Pfaff et al., 1999). Subsequently, great care is needed when these medicines are prescribed; healthcare professionals should be aware of the potential for misuse, especially as anxiolytics, analgesics, and antidepressants are commonly used medicines in suicide attempts.

Lithium is a mood stabiliser and is the only agent that has been shown to reduce suicidal ideation in studies of patients with bipolar disorder. Consequently, lithium is included in the Royal Australian and New Zealand College of Psychiatrists (RANZCP) Deliberate Self-Harm Treatment Recommendations, although it is not recommended without reservation (Boyce, 2004). Atypical antipsychotics, such as olanzapine and clozapine, can reduce the occurrence of psychosis (Beumont et al., 2004; McGorry, 2005), and may also be used as therapy aids. Indeed, these drugs can reduce suicidal ideation in treatment-resistant depressed patients (Reeves et al., 2008). However, possible side-effects can include sexual dysfunction which can complicate antipsychotic treatment in male patients. Sexual dysfunction may be present in as many as 54% of male patients on antipsychotics; 38% of men reported problems in achieving an erection, 42% were unable to maintain an erection, and 58% could not easily achieve orgasm (Cutler, 2003). These side-effects

significantly decreased these patients' perceived quality of life (Olfson et al., 2005). Sexual dysfunction caused by antipsychotics seems to be more common in men than in women (Üçok et al., 2007). Currently it is unclear whether sexual dysfunction is a consequence of the medications or of the psychopathology itself. However, an increased prolactin hormone level caused by antipsychotic medication could lead to sexual dysfunction (Rettenbacher et al., 2010; Üçok et al., 2007).

Gender differences have been found in several drug metabolism phases. Compared to women, men are generally bigger, with less fat on their bodies, and so fat-soluble psychiatric medicines are eliminated more quickly, rather than "stored" in body fat tissue (Smith, 2010). There are also gender differences in the ways in which intestinal, liver, and kidney CYP450 enzymes break down medicinal substances (Franconi et al., 2007; Sabolić et al., 2007). Compared to women, studies have found that several metabolic enzymes in the liver and renal excretion may be more active in men (Waxman and Holloway, 2009). However, renal clearance does vary, with some compounds being secreted more efficiently and some less efficiently in men, compared to women (Sabolić et al., 2007). The rate of gastric emptying is faster in men than in women, which may cause men to have higher transient peak blood levels of e.g. antipsychotics (Smith, 2010). These differences may affect pharmaceutical therapy outcomes by speeding up drug elimination in men, leading to a reduced time that any given dose is effective (Smith, 2010). Therefore, men may need higher doses of some psychopharmaceuticals than women (Haack et al., 2009). Considering all these factors, there can be a ten-fold variability in effective doses between

persons, depending on the circumstances (Seeman, 2004). Women seem to respond better to selective serotonin reuptake inhibitors (SSRI), and the difference in antidepressant response may be as high as a two-fold improvement in women compared to men (Khan et al., 2005). Women also seem to benefit more from antipsychotics compared to men (Usall et al., 2007). These apparent effects could potentially disadvantage suicidal men being treated for mental disorders. However, these sex differences in response to psychotropic medications are still being investigated, and some studies have found no difference (Usall et al., 2007), further highlighting the limitations in our current understanding of the mechanism of action of many medications and their possible differences in efficacy.

Adherence to any pharmacotherapy is a balancing act affected by perceived benefits, adverse effects, or lack of efficacy (Wilder et al., 2010). For these reasons, adherence rates for many psychopharmaceuticals are poor: 35-65% in depression, 50-68% in bipolar disorder, and 50-54% in schizophrenia (Hardeman and Narasimhan, 2010; Wilder et al., 2010). Good provider-patient relationships are important for improving adherence. It must be noted that the performance of suicidal acts does not necessarily mean a lack of adherence to therapy; suicidal patients may have very positive attitudes towards, and good adherence to, treatment (Sokero et al., 2008). Further, gender does not appear to play a part in adherence or compliance with prescribed pharmacological therapies (Department of Health and Ageing, 2010; Nutting et al., 2002; Lee et al., 2010; Baldessarini et al., 2008). A review of the research which examined gender differences in compliance reported: 31 studies which found

no effect for gender; five studies which found women had higher rates of compliance compared to men; and five studies which found women had lower rates of compliance compared to men (Department of Health and Ageing, 2010). However, if Australian men are less likely to use mental health services, or even seek treatment (Slade et al., 2009b; Burgess et al., 2009), they may be under-represented in adherence studies. As a result, accurate rates of male adherence remain uncertain.

Misconceptions and fear may also hinder successful pharmacotherapies, as well as the practical problems of unwanted side-effects or difficult dosage regimens. One study found that as many as one-quarter of Australians believed that antidepressants may be harmful to someone who is depressed or suicidal (Jorm et al., 2005b). While this percentage increased in a later study, the percentage of Australians who believed antidepressants helped in the treatment of depression was smaller than those who believed that vitamins and minerals were beneficial (Jorm et al., 2006b). The most recent round of this study, conducted in 2008, found that among depressed and suicidal persons, antidepressants were considered less harmful than in the past, and, among non-suicidal depressed persons, antidepressants were considered more often useful than harmful (Chamberlain et al., 2012). However, studies have indicated the benefits of the careful use of antidepressants. A Danish study of 217,213 people, over the age of 50 years, compared the suicide rates of men and women who either discontinued or continued their antidepressant treatment (Erlangsen et al., 2009). Men who continued their treatment had a 2.3-fold higher suicide rate than women who

continued. However, the male suicide rate was 3.2-fold higher among those who discontinued treatment (Erlangsen et al., 2009). Therefore, adherence to an agreed therapy is very important; for example, patients on antipsychotics without regular refills may have a four-times higher risk for suicide attempts compared to those who get refills regularly (Herings and Erkens, 2003). Similarly, in out-patient schizophrenics, non-adherence is associated with poor long-term outcomes, relapse, psychiatric hospitalisation, and suicide attempts (Novick et al., 2010). In this study previous non-adherence best predicted future non-adherence.

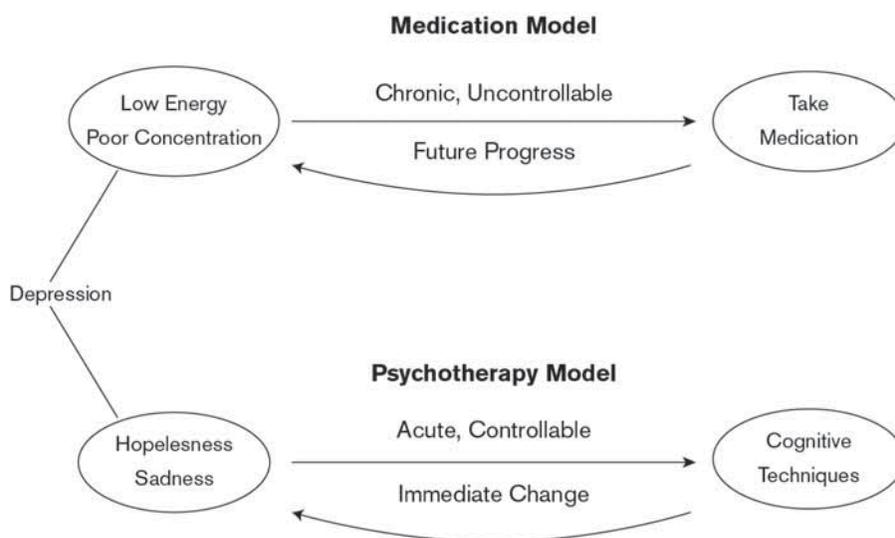
Combining psychotherapies and pharmacotherapies

Suicidal behaviours are complex and are impacted by myriad and varying multi-faceted factors. Consequently, pharmacotherapies can only be effective when underlying problems are treated using appropriate psychotherapeutic methods. Treatment needs to be devised so that it reduces the risk of suicide, promotes the safety of the patient, and addresses any underlying disorders and amenable problems (Boyce, 2004). Some clinical researchers suggest that medication should not be the first line of treatment for people with suicidal behaviours; rather, they should be used during acute crisis, to manage psychiatric or other co-morbid conditions, and to facilitate the feasibility of psychosocial treatment (Cardish, 2007; Boyce, 2004). As the effects of antidepressant medication may be faster than psychotherapy in reducing depression (Keller et al., 2000), they could initially be used to improve the patient's status so they will be more receptive to, and better benefit from, psychotherapy. In addition to these factors, alcohol abuse disorders

and impulsivity must also be considered and treated, especially in young people (Bertolote et al., 2004). In this way, psychosocial risk factors need to be better mapped and clarified to effectively understand a person's suicidality and enhance their resilience (Bertolote et al., 2004). As discussed previously, male help-seeking behaviours, and adherence and attitudes to treatment, need to also be considered to ensure therapy is feasible, appropriate, and relevant.

An American randomised, but not placebo-controlled, trial involving patients with major depressive disorder compared the effectiveness of CBT, antidepressant medication, and a combination of these two in reducing depression (Keller et al., 2000). Combination therapy appeared to be the most effective in terms of the depression scale scores measured in the participants. In addition, a meta-analysis of older studies, comparing older antidepressants, indicated enhanced efficacy when psychotherapies and pharmacotherapies were combined (Friedman et al., 2004). Similar results were obtained in another retrospective American study, with combination therapy giving better results than either psychotherapy or pharmacotherapy monotherapies (Manber et al., 2008). However, different kinds of psychotherapies and pharmaceuticals may naturally result in different outcomes. Further, the type of trauma experienced by the patient can impact upon the efficacy of combination therapy. One study found that combination therapy was not more effective for patients with early life trauma compared to psychotherapy or pharmacotherapy alone, even though, in the same study, combination therapy was more effective for depressed patients with no early life trauma (Nemeroff et al., 2003).

The patient's perception of the therapies received is also important for how combination therapy is perceived overall (Friedman et al., 2004). Here, depression is presented as a model condition since it is often found as part of a suicidal patient's psychopathology. If depression is seen through a medication model, a patient can perceive it as a biological dysfunction of the body, observable as low energy and poor ability to concentrate (Figure 29). In this way, the patient can perceive these symptoms as chronic and uncontrollable, necessarily treated by medication with the hope of being cured in the future through perseverance and adherence to pharmacotherapy. On the other hand, the patient can view psychological symptoms, such as hopelessness and sadness, through a psychotherapy model. In this way, symptoms become acute and controllable, treatable by self by taking part in psychotherapy, and working on solutions to the underlying problems. Here, the patient may expect benefits to be immediate – once a certain problem has been solved, the symptoms related to it will disappear. These differences in patient expectations and perceptions can make combination therapy a challenge for the patient to comprehend, and they need to be addressed by the clinician when deciding on treatment options in consultation with the patient. For example, if patients view their condition purely through the psychotherapy model, they may decide to stop antidepressant therapy immediately after the physical or psychological symptoms have eased, which may lead to possible treatment failure and relapse. Therefore, the patient-practitioner relationship is very important for addressing any issues or misconceptions that the patient may have.

Figure 29. Illness cognition theory

Source: Friedman et al., 2004, p. 61

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Key messages

- Psychotherapies that have a problem-solving skills base and a more practical approach appear to be effective in treating suicidal individuals. Men may prefer these types of therapies.
- Men have been underrepresented in many clinical trials investigating the effectiveness of psychotherapies, and therefore little is known about their engagement in such interventions, with some studies indicating that males expect to be guided in their own treatment, and others indicating that men prefer to take the initiative.
- A combination of pharmacotherapy and psychotherapy appears to offer advantages over either therapy alone, as medicines may ease distress fairly quickly, making patients more receptive to problem-solving psychotherapies for the long-term.
- Misconceptions and fears, as well as possible side-effects, may reduce adherence to pharmacotherapies; yet continued use may be crucial to improve long-term outcomes.
- More research is needed about the effectiveness of various treatments; specifically, randomised controlled trials are needed.

Continuing care

Long-term Treatment and Support

Many psychiatric illnesses such as depression are recurrent and chronic and patients require long-term support (Mann et al., 2005). Psychotherapy may be beneficial in improving resilience, problem-solving, and adherence to treatment (Mann and Currier, 2007). As previous suicide attempts are one of the strongest predictors of future suicide, CBT is designed to prevent suicide attempts and, if adapted to the individual's needs, can markedly improve survival (Brown et al., 2005). However, numerous studies, looking at psychological or psychosocial interventions after deliberate self-harm, have not found differences in the attempt rates of self-harm/suicide between the 'treatment as usual' and various intervention groups within the timeframes of the studies, 6-24 months post-attempt (Hepp et al., 2004). Many of the 25 studies reviewed by Hepp et al. (2004) were conducted with very small patient samples, which limited their reliability, and where any positive effects could have been masked. At an individual, grass-roots level, the interventions indicated to be beneficial have been based in everyday psychiatric/psychological practice, including problem-solving. However, further research is necessary to provide greater support for these findings.

On-going care and support

After attempting suicide, patients who are discharged from hospital tend not to be very compliant to aftercare therapy. More detailed information may be required to identify those needing extra surveillance (Wittouck et al., 2010). However, as evidenced in the Mapping Exercise, which looked at suicide prevention efforts in

Queensland, there is a clear lack of on-going follow-up care (Arnautovska et al., 2012). These types of intervention are essential for preventing a recurrence of suicidal ideation and behaviours and have been identified as a research priority in Australia (Robinson et al., 2008). As indicated in a Western Australian study, patients who have been recently discharged from psychiatric inpatient care are at an increased risk of suicide (Lawrence et al., 2001). Once patients are discharged from this care, they require support to ensure their adherence to therapy and continued improvement. There is some evidence that brief interventions – so-called because they include relatively simple methods such as letters or phone calls sent to previously suicidal people after discharge – may reduce the likelihood of further attempts (Beautrais et al., 2007).

Further, by providing a form of social network, brief contacts from healthcare staff may reduce suicidality, if only temporarily (Fleischmann et al., 2008). The large multi-national WHO SUPREMISS study evaluated an intervention that involved a one-hour personal information session immediately before discharge and nine brief follow-up contacts (lasting about five minutes each) after discharge. The study sought to determine the impacts of these interventions on the rates of suicide during the following 18 months. Results indicated that there were significantly fewer suicide deaths in the intervention group compared to treatment as usual (Fleischmann et al., 2008). Such a preventative effect was also seen in a French study where people were briefly contacted by telephone one or three months after their suicide attempt by drug overdose. This single contact reviewed the progress of their treatment (Vaiva et al., 2006). However, no-suicide pacts between patients

and physicians have shown no clear evidence of effectiveness (Kelly and Knudson, 2000). It should be noted that an unbroken chain of care does lead to lower drop-out or suicide reattempt rates (Mann et al., 2005). A lack of social connectedness can be compensated to some extent by efforts such as these.

In Italy, a call-back telephone helpline for older people at risk of suicide, where they were referred by a GP or social worker, appeared to help many of the users (De Leo et al., 2002). If in crisis, they could contact the service quickly for an immediate response, while nurses from the program also called to enquire about their health twice weekly (De Leo et al., 2002). However, this intervention did not seem to reach older men (only 16 % of the 18,641 people referred were male). Further, the study was not a randomised-controlled trial, which would have provided stronger evidence of efficacy.

Maintaining contact with suicidal patients can be difficult. To overcome these difficulties, some clinical research projects have located the first therapy session within the hospital before the person's discharge, and have obtained contact details of relatives/friends with consent to contact them if necessary (Gibbons et al., 2010). Men at high risk of suicide, who are experiencing multiple risk factors, are less likely to seek help from health care professionals but may be reached through their loved ones (Mishara et al., 2005). As indicated in this study, if their next-of-kin are supported, and provided with information on how and where to seek help, they may be able to better assist the suicidal man. This support may further act as a protective factor as feelings of social connectedness are enhanced. Mishara

et al. (2005) found that the next-of-kin appeared to find this approach beneficial and, based on their subjective reporting, the suicidal men also demonstrated less suicidal behaviours.

Another way that men at high-risk of suicide can be reached are through personal contacts from healthcare professionals at specific intervals (Motto and Bostrom, 2001). These can be letters, phone calls, or motivational counselling. Interventions such as these may replace missing social connections, encourage acceptance of treatment, and lessen initial resentment and perceived stigma at being considered 'a psychiatric case' (Motto and Bostrom, 2001). Letters simply enquiring after the discharged person, sent every couple of months over a period of five years, appeared to improve survival as indicated in a 15-year follow-up study from the United States (Motto and Bostrom, 2001). Similar findings were also demonstrated in two Australian studies (Carter et al., 2005; Carter et al., 2007), but these involved a one-year follow-up. Such low-cost methods could be beneficial for men, as these interventions are accessible and convenient. In addition, mobile phones and short text messages can also be used to contact suicide attempters after they have left hospital. A Chinese pilot study tested the impact of encouraging generic text messages, expressing concern about the welfare of the patient, sent once a week for a month after a suicide attempt (Chen et al., 2010). While the patients in this study thought the messages were encouraging, no effects on help-seeking were observed. A British study allowed a group of people with experiences of suicide, such as clinicians and patients, to design a 'consensus text message protocol' sent to patients after suicidal hospitalisations (Owens et al., 2011). The messages considered most

effective for reducing the incidents of self-harm were not generic; rather they validated emotions and were personally and specifically tailored for the individual. This approach is being investigated further; however, these findings suggest that personalised content appears more beneficial and is perceived more positively than more impersonal, generic messages.

Further, internet-based self-help sites could be useful for people with mild or moderate suicidal ideation (van Spijker et al., 2010); the relative anonymity offered by these sites may appeal to men. However, people without access to the internet would obviously be unable to use such services. The safety of such sites could be ensured by only allowing adults access, continually screening for severe depression and suicidal ideation, and providing instructions and links/numbers to relevant healthcare resources. The efficacy of these sites has not yet been evaluated and more research is needed to ensure user safety.

Key Messages

- On-going care and support are recommended for suicidal patients after discharge from hospital to reduce further suicidal behaviours.
- Brief interventions, such as follow-up contacts in the form of phone calls, short personal text messages, and letters, have been found useful for suicidal male patients.
- There is a need for further studies to test effective follow-up strategies for suicidal people.

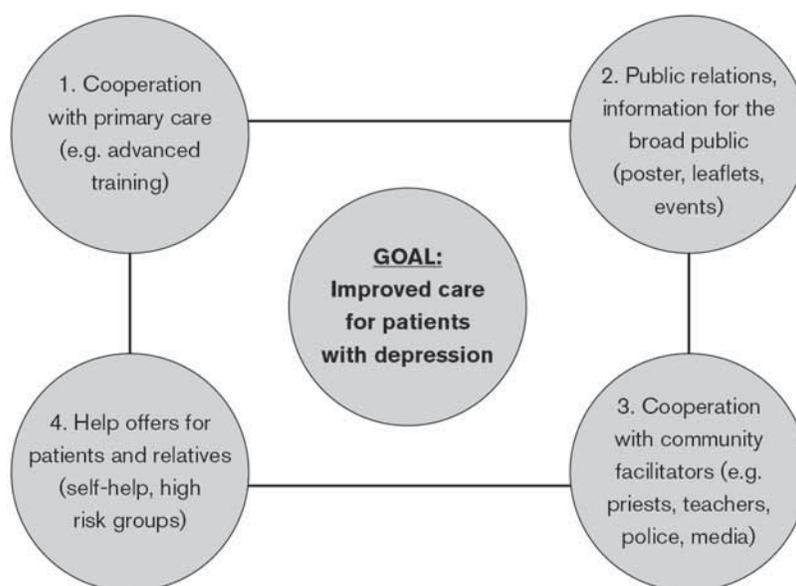
An example of a combined universal, selective, and indicated prevention

As suicide is a multi-dimensional phenomenon, an effective way to reduce suicide rates could be to target several domains at once (Hegerl et al., 2006; Hegerl and Wittenburg, 2009; Hegerl et al., 2009; Ho et al., 2011; Hübner-Liebermann et al., 2010; Isaac et al., 2009; Knox et al., 2010; Bertolote et al., 2004; Pirkis et al., 2000). Many countries, including Australia and New Zealand, have implemented national programs that target a wide range of areas (Jenkins and Kovess, 2002). The German Nuremberg Alliance against Depression two-year pilot project targeted depression training and awareness interventions for GPs and community facilitators, recruited famous politicians to publicly support the campaign, and monitored media coverage of suicide cases (Hegerl et al., 2006). The project also educated the general public, but specifically targeted depressed or suicidal people and their loved ones. Self-help groups were established for depressed people; 'crisis green cards' were provided which enabled immediate access to treatment if necessary. Findings from this pilot study indicated reductions in suicidality in Nuremberg, compared to Wuerzburg; however, as suicide rates were only compared to the previous year, reliability may be limited. Yet, these findings demonstrated a potential reduction in suicidal acts (suicide attempts and completed suicides), especially those using higher lethality methods. Further, awareness programs and publicity may have enhanced the willingness of GPs to address depression, as patients may have been more likely to ask about it.

These concepts were adopted for a European multi-site intervention and applied in 17 European countries (Hegerl and Wittenburg, 2009); four of these countries performed a multiple-target evaluation of these prevention methods. The Nuremberg model (Figure 30) was also applied in the German city of Regensburg which had higher suicide rates than the German average (Hübner-Liebermann et al., 2010). When a time period of 10 years was investigated (five years before and five years after the intervention), there were reductions in the suicide rates in Regensburg, compared to a control city and the German average. Interestingly, it was only the male suicide rate that declined. Since the intervention had four components, it is

difficult to determine which one(s) were the most effective. A telephone consultation session with a male psychiatrist appeared to appeal to men, as most callers were male (Hübner-Liebermann et al., 2010). The authors speculated that anonymity at first contact appealed to men with depression. However, in this study, as well as others discussed previously, the male suicide rate did not remain at the lower level but started to slowly rise again after the intervention was removed. The Nuremberg model offers an example of how suicide prevention efforts at different levels can be linked to create continuity of care, so that proper treatment is available to as many consumers as possible.

Figure 30. The four levels of the Nuremberg/European Alliance Against Depression project



Source: Hegerl et al., 2008, p. 52

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Suicide prevention efforts targeting Australian men

Suicide prevention efforts targeting Australian men were identified using the Google search engine. Some Australian and international suicide prevention efforts have already been discussed

in the previous chapters. Australian programs available to men in crisis are presented in Table 16 with brief descriptions of their content and mode of administration to target subjects. Altogether, eight Universal, 25 Selective, and 22 Indicated Interventions were identified.

Table 16. Some Australian suicide prevention resources

Services specifically for men or containing a special service for men are highlighted in purple.

Name	Description	Mode of intervention
Universal interventions		
Living Is For Everyone (LIFE)	National suicide strategy and LIFE suicide prevention model, educational material, http://www.livingisforeveryone.com.au/Men.html	Material online and offline
<i>beyondblue</i>	National awareness campaigns and education, info line, http://www.beyondblue.org.au/	Material online and offline
MindMatters	Training material and resources for establishing MindMatters mental health programs in schools, online resources for mental health promotion, http://www.mindmatters.edu.au/default.asp	Online and face-to-face
Suicide Story – Training Tool DVD	Suicide awareness and resources with focus on Aboriginal and Torres Strait Islander Peoples, http://www.mhaca.org.au/LPP-suicide-story.html	DVD
“Prevention is the Only Cure: Raising Awareness to Prevent Suicide in Older Men”	An awareness campaign about suicide in older men, targeting caregivers and people close to retirement or already retired, in Queensland 2001-2002 (Bartlett et al., 2008)	Face-to-face
Older Men in Rural and Remote Areas Suicide Prevention Initiative	A community group awareness campaign about suicide awareness and prevention (COTA Queensland)	Face-to-face
Mindframe	Guidelines on reporting on suicides in the media, instructions to professionals, http://www.mindframe-media.info/	Online

SANE StigmaWatch	SANE StigmaWatch monitors and acts on community concern about media stories and portrayals which stigmatise people with mental illness or inadvertently promote self-harm or suicide, http://www.sane.org/	Online
Selective interventions		
Australian Men's Shed Association	A network of Men's Sheds around Australia, offering men a chance to socialise and regain a sense of self-worth while doing e.g. woodwork or metalwork, http://www.mensshed.org/	Face-to-face
The Shed Online	Similar to Men's Sheds, this online discussion and resource group encourages social interaction and sharing, http://www.theshedonline.org.au/	Online
Menslink	Training to become a mentor and/or life coach for young men, http://www.menslink.org.au/	Face-to-face
Mibbinbah Men's Spaces	Culturally appropriate, safe places for Aboriginal and Torres Strait Islander men to socialise in and talk about leadership, health and other issues to improve resilience and wellbeing, http://www.mibbinbah.org/	Face-to-face, online
Alive and Kicking Goals!	A Western Australian innovative project engaging Aboriginal and Torres Strait Islander youth in football activities to improve togetherness and provide positive examples (organised by Men's Outreach Service Inc.), http://www.broomesaintsfc.myclub.org.au/9.htm	Face-to-face
Community Activity Programs through Education – Indigenous Police Citizen Youth Club	Activities, life and leadership skills for Aboriginal and Torres Strait Islander Youth in four communities in Queensland, e.g. Something Better community awareness and sports activities, http://www.capeyorkpcyc.org.au/	Face-to-face
Riverland young Indigenous men suicide prevention project	A South Australian project connecting local community organisations with local Aboriginal youth for traineeships etc., http://www.socialinclusion.sa.gov.au/files/Update_06Jun.pdf	Face-to-face

Aboriginal Male Suicide Prevention Strategy	Personal development training for Aboriginal and Torres Strait Islander men about managing life situations (offered by Centacare Catholic Diocese of Port Pirie), http://www.hsfinder.sa.gov.au/Pages/ServicesSites/ServicesSitesView.aspx?ServicesSitesID=1047693948&ActiveTab=Topics	Face-to-face
Yiriman Project	Involving local Aboriginal and Torres Strait Islander youth in culturally important activities arranged by the elders, improving ties with their own community and culture, http://www.yiriman.org.au/	Face-to-face
Older Men Unlimited Hervey Bay Inc.	A friendly community-based environment for socialising and reducing isolation in older men, http://www.omuhb.com.au/	Face-to-face
Older Mens Network Inc.	Community-based environment for socialising and reducing isolation in older men, http://www.omn.org.au/	Face-to-face
The Older Mens Network (TOMNET)	Social groups and support for older men in regional, rural, and remote South-West Queensland, http://www.tomnet.org.au/	Face-to-face, online
Older Men: New Ideas (OM:NI)	Community groups for older men to socialise and get together, http://www.omni.org.au/	Face-to-face
Gay and Lesbian Counselling and Community Services of Australia	Counselling telephones in all states for GLTBQQ people, http://www.glccs.org.au/	Telephone
OzHelp	Workplace training for apprentices and tradesmen in construction to recognise suicidality and seek help, and for health improvement and building social capacity and life skills, http://www.ozhelp.org.au/index.shtml	Face-to-face
Mates In Construction (MIC)	Training and resources for people in construction to recognise suicidality and get their mates to seek help, http://www.matesinconstruction.org.au/	Face-to-face

Read the Signs	Resources for (young) men to look for signs of suicidal thinking in themselves or in mates, encouraging helping behaviour, http://www.readthesigns.com.au/	Online
Australian Defence Force Suicide Prevention Program (ADF SPP)	Training to identify suicidal behaviour, http://www.defence.gov.au/health/DMH/i-spp.htm	Face-to-face
Operation Life	Suicide Prevention Workshops for veterans and their families and also the general community, http://www.dva.gov.au/health_and_wellbeing/health_programs/vvcs/services/Pages/operation_life.aspx	Face-to-face
SANE Helpline	A telephone and online helpline providing information about mental illness, advice and referral as well as online resources on supporting people who may be feeling suicidal, http://www.sane.org/	Online, telephone
ACROSSnet (Australians Creating Rural Online Support Systems)	Information and resources relating to suicide prevention, http://www.acrossnet.net.au/	Online
NSW Farmers' Mental Health Network	http://www.nswfarmers.org.au/mental_health_network	Face-to-face
Working with Warriors DVD	A DVD of mental health problem awareness, resources, "profiles four bush stories and the effect stress can have on the lives of rural men and their families", http://suicidepreventionaust.org/Resources.aspx	DVD
Rural Alive and Well Inc., CORESTM (Community Response to Eliminating Suicide)	Community based suicide awareness training in rural Tasmania, support for communities to arrange their own support networks, support to individuals in suicidal crisis, http://rawtas.com.au/pages/suicide-prevention.php	Face-to-face
Bloke's Book	Tasmanian Blokes' Book, a resource booklet with links and phone numbers to various help resources in Tasmania, including suicide prevention, http://www.dhhs.tas.gov.au/__data/assets/pdf_file/0013/64210/Blokes_Book_-_nov_10.pdf	Online

Indicated interventions		
Lifeline	National helpline for people in crisis, online crisis chat, online resources, http://www.lifeline.org.au/	Telephone, online
MensLine Australia	National crisis line and online chat forum, online resources, http://www.menslineaus.org.au/	Telephone, online
Suicide Call Back Service	National helpline for people who are feeling suicidal, online resources, http://www.suicidecallbackservice.org.au/	Telephone, online
The Salvation Army Hope Line	National bereavement support helpline, http://suicideprevention.salvos.org.au/	Telephone
Samaritans Crisis Line	Western Australian helpline for people in crisis, http://www.samaritanscrisisline.org.au/	Telephone
Samaritans Tasmania Telephone Befriending	Tasmanian helpline for people in crisis, http://www.samaritanstasmania.org.au/index.html	Telephone
SuicideLine	Victorian telephone helpline for people in crisis, support forum, resources for people who are suicidal and their next-of-kin, http://www.suicideline.org.au/	Telephone
suicideprevention.com.au	Instructions also specifically for men on how to fight suicidal thoughts and what to do to resolve them, http://www.suicideprevention.com.au/pages/?id=110&tid=7	Online
Life Bereavement Support Crisis Line	Counselling to people recently bereaved, as well as a crisis telephone service, http://www.kochfoundation.org.au/bereavement.html	Telephone
Rural Mental Health Support Line	Helpline for people in rural areas of NSW, http://www.crrmh.com.au/Current-Projects/rmhs.html	Telephone
Dads In Distress	National support line for separated dads with separation trauma, http://www.dadsindistress.asn.au	Telephone
Australian Defence Force All Hours Support Line	24h support line for ADF personnel, http://www.defence.gov.au/health/DMH/i-spp.htm	Telephone
Veterans' and Veterans' Family Counselling Service (VVCS)	Helpline for veterans and their families, http://www.vvaa.org.au/vvcs.htm	Telephone

Headspace	National youth mental health support, information and advice to young people aged 12 to 25, discussions either at centres or online, http://www.headspace.org.au/	Face-to-face, online
White Wreath	Builds care facilities, "safe havens" for people with mental health issues or suicidal thoughts or attempts, http://www.whitewreath.com/	Face-to-face
Living Well	Online discussion forum and confidential counselling online and by email for men who have experienced sexual abuse or assault, http://www.livingwell.org.au/	Online
Sexual Assault Resource Centre (SARC)	Western Australian, information for men who have been sexually assaulted or abused, 24h Crisis line, http://kcmh.health.wa.gov.au/services/sarc/documents/info_for_men.pdf	Telephone, face-to-face
Men's Domestic Violence Helpline	Western Australian helpline for men who are concerned about domestic violence, http://www.dcp.wa.gov.au/CrisisAndEmergency/Pages/DomesticViolenceHelplines.aspx	Telephone
Standby (Suicide Bereavement) Response Service	Crisis telephone number that can mobilise a response team, offered in ACT, QLD, and VIC to those bereaved by suicide, http://www.supportlink.com.au/standby.cfm A similar service is also offered in Tasmania.	Face-to-face
Reach Out	Material and advice for young people on many issues such as suicide, encouraging daily sms service, online forum for discussions, http://au.reachout.com/	Online
KidsLine	Helpline for kids and youth in crisis, online and email counselling, http://www.kidshelp.com.au/	Telephone, online
<i>beyondblue</i> Clinical Practice Guidelines	<i>beyondblue</i> Clinical Practice Guidelines for professionals for depression and related disorders, depression in adolescents and young adults, and perinatal depression, http://www.beyondblue.org.au/index.aspx?link_id=6.1245	Online

Conclusions and implications

Scientific evidence on the effectiveness of prevention activities appears to be limited, even more so in men. However, a number of initiatives have shown some promising indications or indirect evidence of potential benefits. This means that no clear-cut directions have emerged from the literature, and that the few positive elements might be strongly context-related (such as in the case of training of physicians of a Swedish island) and culturally bound (e.g. it is possible – if not probable – that the decrease in the choice of firearms as a suicide method in Australia is more related to a different cultural acceptance of that specific method than to its restrictions by laws). These considerations also imply that the implementability of a strategy of suicide prevention that was successful in a given location, cultural environment or nation might not prove equally advantageous in a different contexts. Inevitably, this involves a commitment from countries to major investments in developing their own weaponry in fighting suicidal behaviour, especially in nations where the burden of suicide phenomena is high.

Research in Australia suggests that the overall cost of suicide is likely to be between \$770 million and \$1.2 billion per year. This account considers the costs associated with the labour market and health care system, but it does not recognise the potential ramifications of suicide on emergency services, such as police, or the flow-on effects of suicide onto the next-of-kin. Moreover, it is also likely that the costs of suicide differ by age and between males and females. Research indicates that suicide among males has accounted for an increasing burden of premature mortality over time (Doessel et al., 2009a). Male suicide rates are almost universally higher than those of females

around the world. In Australia, completed suicide is three – to four-times more common in men than in women, although women engage more in non-fatal suicidal behaviours. Specific male groups – such as Aboriginal and Torres Strait Islander men, men of sexual minorities, old and young men, and men working in stressful conditions or who are imprisoned – are at an even greater risk of suicide.

The factors influencing males' vulnerability to suicidal behaviours are complex and multi-faceted, including biological, psychological, and social determinants. Neurological signalling and its imbalance are affected by various environmental effects such as stress. Individual personality traits and coping abilities used to respond to life challenges are modified by the prevailing social circumstances, which can affect the resulting behavioural patterns. Aggression linked to testosterone, and impulsivity linked to dopamine signalling, may increase the risk of engaging in suicidal behaviours. These may also influence the tendency for men to choose more lethal suicide methods. Impulsivity, irritability, and aggression are all personality traits that have been shown to be risk factors for suicidality. Therefore, a biological predisposition may start a developmental cascade which can lead to aggression directed towards self, sometimes mediated by feelings of shame and guilt, especially in men. It has been argued that men are more sensitive to changes in their social environment. Changes perceived as stressful or harmful such as unemployment and marital separation may lead to suicidal actions. Understanding that male experiences of depression and suicidality are fundamentally different from female experiences is important for designing appropriate interventions for men.

Moreover, the male depressive syndrome may be different from the currently reported symptom-based depression, as men tend not to make complaints about these and other symptoms (Rutz et al., 1997). Therefore, male depression might be under-diagnosed. The male depressive syndrome may simply be different, with men acting out through aggression to deal with their feelings of helplessness. When seeing a healthcare professional, men tend to make complaints about somatic issues rather than mental health issues, possibly hoping that treating the somatic complaint will help the mental disorder as well (Saarinen et al., 1998). Making a somatic complaint may also be the last attempt of a severely distressed man to form a relationship with the care provider who could help ease his condition. These masculine difficulties with communicating mental health problems should be addressed through the training of healthcare staff.

Since men may not actively seek help, help should be brought to them. GPs and other healthcare professionals should actively ask their male patients about depression and suicidal ideation as part of routine checkups. GPs should be trained regularly to update their knowledge of male suicidality and any new tools available for detecting suicidal ideation and behaviour. Physician education for detecting and treating depression in men should also be improved and initiatives made to encourage men to seek help. Male help-seeking behaviour should be targeted with specific public campaigns to destigmatise disclosing these types of problems with professionals. Other mental illnesses, such as substance use disorders, that increase the risk for suicide should also be targeted for screening and treatment. All state governments

should update their instructions to healthcare staff regarding suicide risk assessment. Those men who rarely visit GPs should also be targeted; this can be done by offering checkups in less formal, non-threatening environments. Continued follow-up care after a suicide attempt remains a neglected area in Australian suicide prevention efforts; yet, this area is vital because of the above-mentioned male reluctance to actively seek help. New initiatives should be developed to encourage follow-up treatment after a suicide attempt, as previous suicidal behaviour can predict future suicide attempts.

More studies are needed on psychotherapies specifically designed for men so efficacy can be better judged. Practical approaches, with a focus on problem-solving, usually appeal to men, and it may be beneficial to develop these types of therapies targeting Australian men. Adherence to pharmacotherapy when applicable is also important. This can be improved by increasing the rapport between the patient and doctor so that discussions around problems, such as side-effects from medications, can be solved. One potentially detrimental side-effect of medication for men is sexual dysfunction. It is essential for these problems to be addressed and resolved before treatments are successful.

Further, mental health promotion interventions are under-developed in Aboriginal and Torres Strait Islander populations and there is a lack of evidence to indicate their efficacy (Clelland et al., 2007). However, the involvement of Aboriginal and Torres Strait Islander communities in the design and implementation of all prevention initiatives empowers the community. Increased benefits may be gained from more appropriate

and relevant programs. These experiences strengthen ties within and across communities, enhancing connectedness and capacity. Culturally-appropriate interventions should also be developed for other minority groups, such as immigrant and refugee men, as well as gay and bisexual men, to ensure interventions reach their intended target groups in a feasible way.

Men need to be empowered so they become more comfortable seeking and accessing the most suitable treatments. This can be enhanced with community support. In this way, resources should incorporate tools so men can begin to help themselves and, later, others. Social inclusion programs should target every age group, especially men who have been marginalised. Schools may be the most effective place to reach young men and teach them life skills and resilience which may serve them well for the future.

Online and telephone crisis and counselling services should be maintained, especially for men in rural and remote areas, and more tailored services should be offered for specific groups such as farmers or miners. Online mental health resources have been perceived to be helpful by as many as 70% of young Australians (18-25 year olds) in one study, and there did not seem to be a difference between genders, which implies that young men might be effectively approached through the internet (Oh et al., 2009). However, this finding is not universal. Another study examining the attitudes of young rural Australian footballers found that they would rather turn to a mate or a GP than the internet for help with depression (Pierce et al., 2010). Nevertheless, internet-based interventions should be developed

further to ensure easy access to information and services in rural and remote locations.

Peer-support initiatives, such as gatekeeper training, should continue to be implemented. Programs such as *Alive and Kicking Goals!* which targets Aboriginal and Torres Strait Islander youth in the Kimberley, help young males become empowered and resilient, building esteem and confidence with positive role models. In this way, social networks can support men by offering the chance to talk about their experiences and creating solutions by learning how others have faced the same issues. Skills sharing and projects to help the community have also been implemented, such as in the *Men's Sheds*. More community-based interventions are needed for men of all ages to improve their resilience.

Universal Interventions that have been shown to have a positive effect on suicide prevention include the restriction of suicide means, improving control of alcohol consumption, and increasing awareness about depression and suicidality (Beautrais, 2005). Suicide methods need to be restricted, where possible through changes in legislation. In the 1996, gun ownership was restricted in Australia and efforts have been made to make public places less accessible for suicide, including the fencing-off of bridges, railways, and motorways. Some areas, where problem alcohol use has been identified, have been targeted for restrictions on the sale of alcohol. As alcohol is present in many suicides, and its use can lower inhibitions, restrictions may help to reduce male suicides in Australia. As a result, alcohol abuse disorders need to be better detected and appropriate treatment offered. Awareness and recognition of

mental health disorders should also be improved through effectively-targeted campaigns.

Suicide prevention initiatives under the NSPS and the LIFE Framework have focused mostly on Universal Interventions (Robinson et al., 2006). However, some programs have focused on high risk groups, such as Aboriginal and Torres Strait Islander Peoples, youth, and people in rural areas. More attention needs to be given to other vulnerable groups, including those who self-harm and those recently discharged from hospital. There would be potential for more Selective and Indicated Interventions to be created that would better care for these populations. Certainly, men are a group that could benefit from more tailored prevention efforts, especially in terms of enhancing help-seeking behaviours and dismantling traditional masculine stereotypes, such as the perception that disclosure signals weakness and the belief that substance use can be an effective self-treatment for depression (Jorm et al., 2006c). There is a clear need for more evaluations of suicide prevention programs so as to ensure continual improvement and best practice (Department of Health and Ageing, 2008). Evaluations then help to promote and strengthen more evidence-based and effective suicide prevention efforts (Rodgers et al., 2007). It has been argued that Australian suicide prevention research should focus more on filling these gaps in evidence (Robinson et al., 2008).

Greater recognition of men as a group that is vulnerable to suicide is needed by federal and state governments, health-service providers, and the academic community. Some potential strategies to reduce male suicide rates in Australia are:

- Improved detection of depression, other mental illnesses, and suicidality, so men who do not approach health care can still be reached;
- Improved exposure to mental health promotion campaigns in school settings from an early age. Male students, especially, should learn healthy coping strategies and problem-solving skills. This may reduce the perceived stigma of mental illness and improve awareness of available resources which can lead to beneficial impacts on suicidality;
- Strengthened suicide prevention efforts targeting high-risk groups, such as young and old men, Aboriginal and Torres Strait Islander men, men of sexual minorities, and men in high-risk settings. The needs of each specific group should be considered and addressed specifically by involving the communities in designing interventions which offer appropriate suicide prevention initiatives;
- Increased empowerment for men so they can find their own solutions to life problems. This will likely improve their resilience and provide them with feelings of accomplishment;
- Targeted public awareness campaigns and highlighted positive male role models to encourage men to seek help and deconstruct potentially dangerous stereotypical masculine perceptions of stoicism and self-sufficiency;
- Improved peer support and community inclusion to provide men with an effective social support network to supplement professional healthcare;
- Further investigation on the male pattern of depression to better detect and address these symptoms;

- Focused research investigating the outcomes and effectiveness of male suicide prevention efforts to ensure that best practices are implemented;
- Increased restrictions on access to different means of suicide; for example, more extensive fencing at appropriate high risk locations such as high bridges, busy railways and motorways;
- Further focus on treatment programs for alcohol use disorders, with excessive alcohol use limited by legislation. Awareness campaigns should educate the community that alcohol, and other substances, should not be used as a coping strategy for depression or suicidality; and,
- Continued responsible media reporting of suicides so as to prevent vulnerable people from imitating these suicidal acts.

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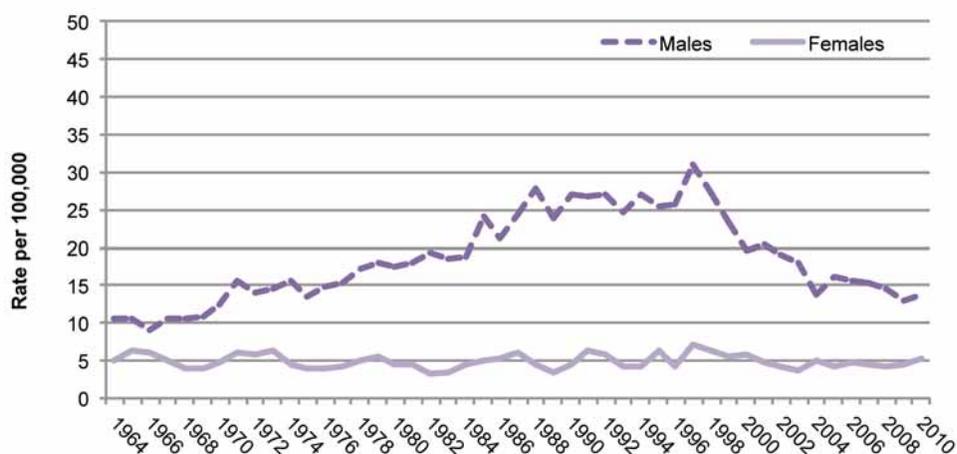
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Appendix A

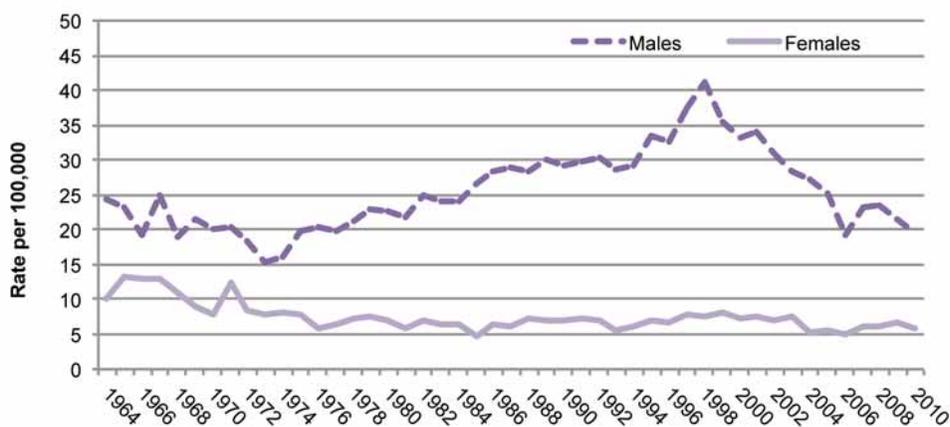
Figure A1. Suicide rates among 15–24 year olds, Australia, 1964–2010



Suicide rates in males aged 15-24 years experienced a period of sharp increase between 1964 (10.5/100,000) and 1997 when they reached their highest value (31.0/100,000).

From 1998 onwards, suicide rates in this age group have been declining, reaching a rate of 13.7/100,000 in 2010.

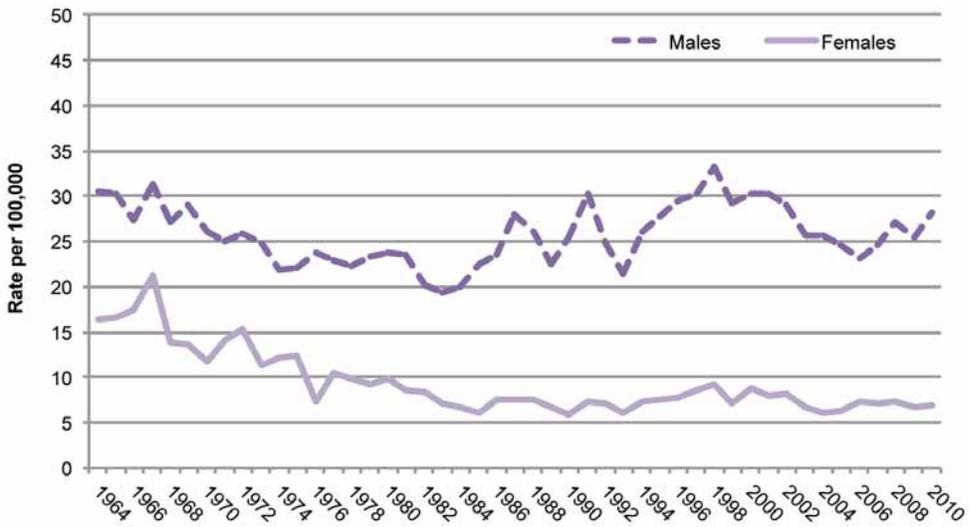
Figure A2. Suicide rates among 25–34 year olds, Australia, 1964-2010



Suicide rates in males aged 25-34 years declined between mid 1960s and mid 1970s (from 24.4/100,000 in 1964 to 15.3/100,000 in 1973), which was followed by a period of sharp increase

until 1998 when they reached their highest recorded value at 41.2/100,000. In subsequent years, the rates declined; in 2010, there were 19.4 suicides/100,000 population in this age group.

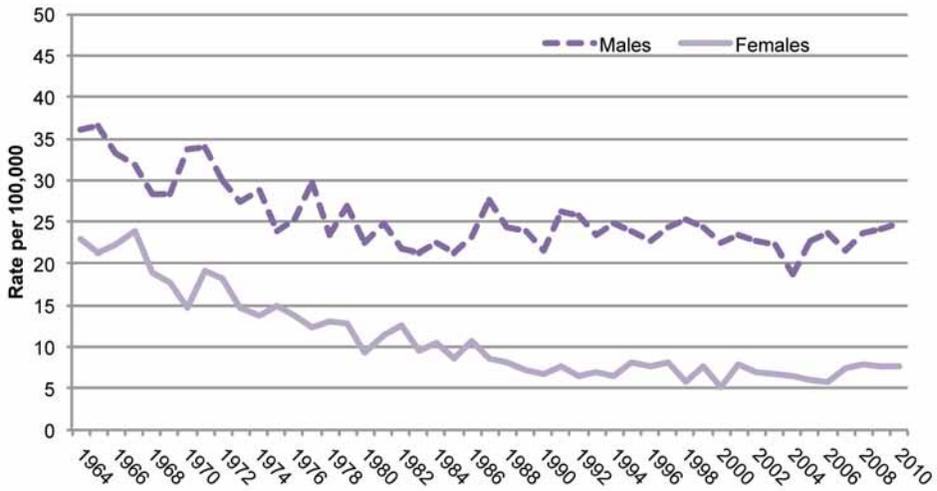
Figure A3. Suicide rates among 35-44 year olds, Australia, 1964-2010



Suicide rates in males aged 35-44 years declined between mid 1960s and mid 1980s (from 30.4/100,000 in 1964 to 19.3/100,000 in 1983), which was followed by a period of fluctuating rates until 1998 when suicide mortality in this

age group reached its peak at 33.2/100,000 population. Between 1998 and 2006, rates have dropped significantly (to 20.1/100,000 in 2006), and increased again in subsequent years (to 28.1/100,000 in 2010).

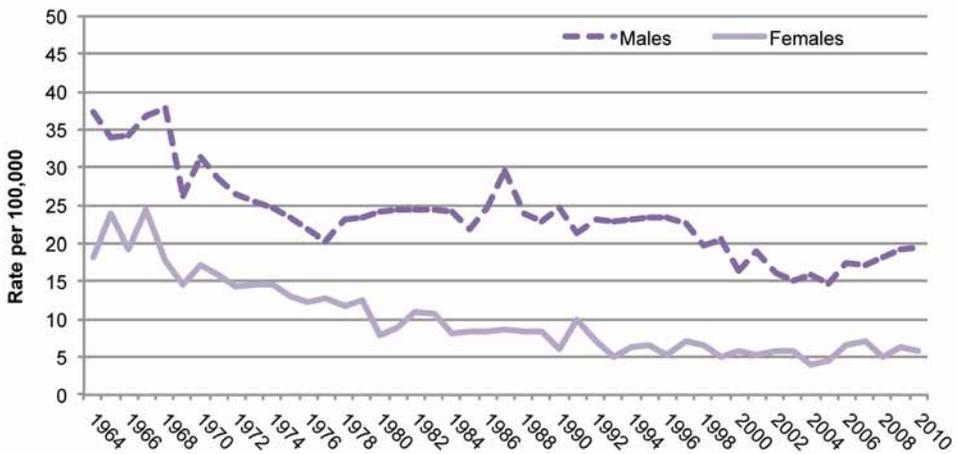
Figure A4. Suicide rates among 45–54 year olds, Australia, 1964–2010



Suicide rates in males aged 45-54 years were highest in 1964 (36.1/100,000), after which year they started steadily declining. Lowest recorded

suicide mortality in this age group was in 2004 at 18.7/100,000 population, followed by an increase to 24.8/100,000 in 2010.

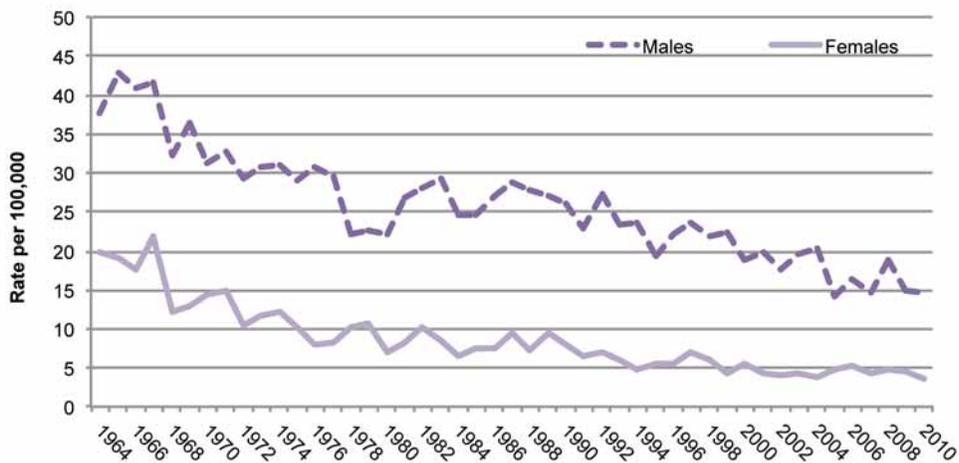
Figure A5. Suicide rates among 55–64 year olds, Australia, 1964–2010



Suicide rates in males aged 55-64 were highest in 1966 (34.1/100,000), after which year they started steadily declining. Lowest recorded

suicide mortality in this age group was in 2005 at 14.7/100,000 population, followed by an increase to 19.4/100,000 in 2010.

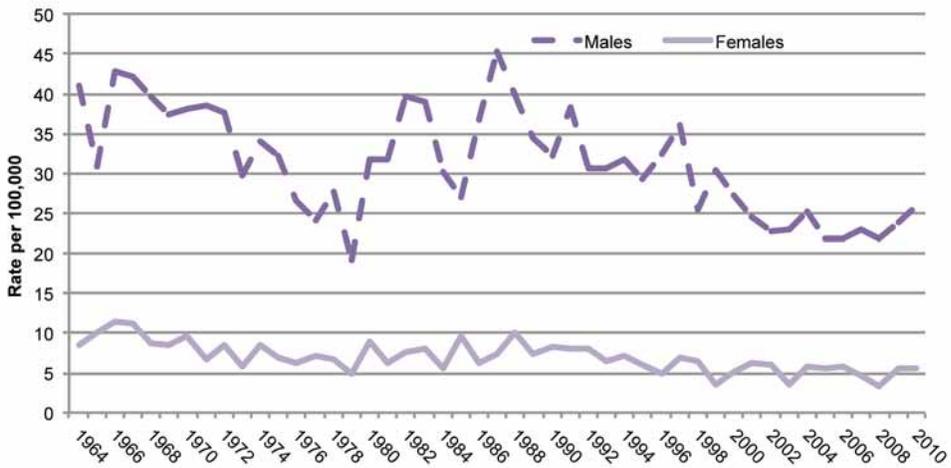
Figure A6. Suicide rates among 65–74 year olds, Australia, 1964–2010



Suicide rates in males aged 65-74 years were highest in 1965 (42.9/100,000), after which

year they started steadily declining to its lowest recorded value in 2005 (14.2/100,000).

Figure A7. Figure A7: Suicide rates among 75+ year olds, Australia, 1964–2010



Suicide rates in males aged 75 years and over were highest in 1987 (45.4/100,000), after which they started steadily declining to its lowest

recorded level in 2006 (21.8/100,000), followed by an increase to 25.9/100,000 in 2010.