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ARC DISCOVERY PROJECT NUMBER DP087847

**Safeguarding Rural Australia:
Addressing Masculinity and Violence
in Rural Settings**

**Suicide and other violent self-harm in an Australian rural context:
Analysis of secondary data**

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Introducing this series of data reports

Our analyses of secondary data for our work-in-progress ARC Discovery Project – *Safeguarding Rural Australia: Addressing Masculinity and Violence in Rural Settings* – are available online. This permits the material in the series to be referenced in documents subsequently published by the research team and also provides a useful resource for others. For the introductory report which outlines the framework and scope for secondary data analyses for this project and for complementary reports analysing secondary data, go to the project's home page at: <http://www.ljrc.law.qut.edu.au/research/projects/rural/>.

Availability of data and the manner in which they have been collected and consolidated have been major determinants of our analytical approach. Moreover, examination of suitably distinguishable classifications to define varying dimensions of 'rural settings' in Australia was essential. The introductory report mentioned above validates the depth and breadth of our inclusive view of violence and presents the schematic which describes the framework designed to structure and manage secondary data analyses.

2. Focus of this report

This report is an update of an earlier one produced in September 2009 (see Carrington et al. 2009) which remains as an ePrint through the project's home page. The report focuses on our examination of extant data which have been sourced with respect to self-harm and suicide among males living in regional and remote Australiaⁱ and which were available in public data bases at production time. Moreover, specific areas of concern regarding elevated rates of suicide for rural males and data anomalies which emerged during our examination of these data are discussed.

These aspects of violence were central to a paper presented by the authors at the Institute of Australian Geographers Conference in September 2009 (McIntosh, Carrington and Scott 2009) and another at the Australian and New Zealand Society of Criminology in November 2009 (Carrington, Scott and McIntosh 2009). This report also formed the basis for our submission to the Senate's inquiry into Suicide in Australia instigated in 2009.

3. Limitations to existing data

Under-reporting of suicides in published statistics has become evident in recent years. Although there is no clarity about when publication of unreliable data commenced or how it has varied over time, there are reasons to think that processing problems emerged, or worsened, after 2002 (Henley and Harrison 2009). This under-reporting is in part as a result of misclassifications due to the high number of cases with a status of 'open' on the National Coronial Information System at the time of ABS processing (ABS 2008, Cat. No. 3303.0). The ABS also noted reluctance by Coroners to make determinations of suicide have impacted on suicide data. Furthermore, cases which could potentially have been suicides (for example, some MVTAs, discharging of firearms, hangings, poisonings, drownings, electrocutions, and so on) but for which the intent was determined to be other than intentional self-harm cannot be separately identified from available data.

The ABS has, in recent years, recognised these anomalies and limitations in data quality with respect to published suicide statistics (ABS 2008, 2009, Cat. No. 3303.0). Accordingly, data for suicides for 2007 and subsequent years are to be subjected to a revision process which will improve the quality of the data.

Data initially released by the ABS for 2007 pointed to the number of suicides recorded in Australia in the decade from 1997 to 2007 decreasing by 30% overall, from 2,720 to 1,881 (ABS 2009). Historically, around 80% of all suicides have been males (77% in 2007). Revised statistics for 2007 released in March 2010 increased the number of deaths coded to Suicide to 2,054, an increase of 173 deaths (9.2%) (ABS 2010, Cat No. 3303.0, Technical Note 3, 2007 Revisions). Results of an additional and final revision for 2007 data can be anticipated during 2011.

Some researchers (for example, Mendoza 2009) have expressed a view that correct figures for 2007 may have been originally underestimated by as much as 45%. More conservative estimates in recent Australian Institute of Health and Welfare (AIHW) research place the under-reporting at somewhere between 3% and 16% (Harrison et al. 2009)ⁱⁱ. Lifeline Australia estimates the extent of under-reporting for 2007 at between 20% and 30% (O'Neil 2009). Further insights into limitations in data quality are contained in an examination of source material for the period 2004-05 by Henley and Harrison (2009). This exploration identified that there has been under-reporting of deaths in Australia as a result of not only suicides but also homicides and, in New South Wales in particular, fatal Motor Vehicle Traffic Accidents (MVTAs). Concomitantly, over-reporting is suspected for unintentional injury by mechanisms that are common among suicides and homicides (for example, shootings and hangings).

Whether there has been a decline in recent years in numbers of statistically recorded suicides will become retrospectively clearer through these process improvements introduced by the ABS. Irrespective of the final statistics, rates clearly remain alarmingly high in comparison with other external causes of deathⁱⁱⁱ. For instance, more people die annually in Australia as a result of suicide than through MVTAs.

Suicide data that has so far been released for 2008 have been positively impacted by process improvements. Data published for that year show 2,191 deaths from suicide were registered; 78% were males (ABS 2010: Cat No. 3303.0). Due to the quality improvements and the revisions process that have been implemented, the ABS noted that the increase in the number of deaths classified as suicide between 2007 and 2008 may be overstated. For deaths registered in 2008, 561 deaths were the subject of ongoing coronial investigations at the time ABS data were prepared for release. Some of these deaths may be subsequently determined as suicide after further investigation and recorded as such in 2008 Revisions reports with anticipated release dates in 2011 and 2012. Clearly it will be some years before contemporary trends for deaths through suicide can be realistically interpreted for Australia. Statistics for the past decade as they currently stand (Figure 1) suggest under-reporting might relate more so to statistics for males who have suicided than for females.

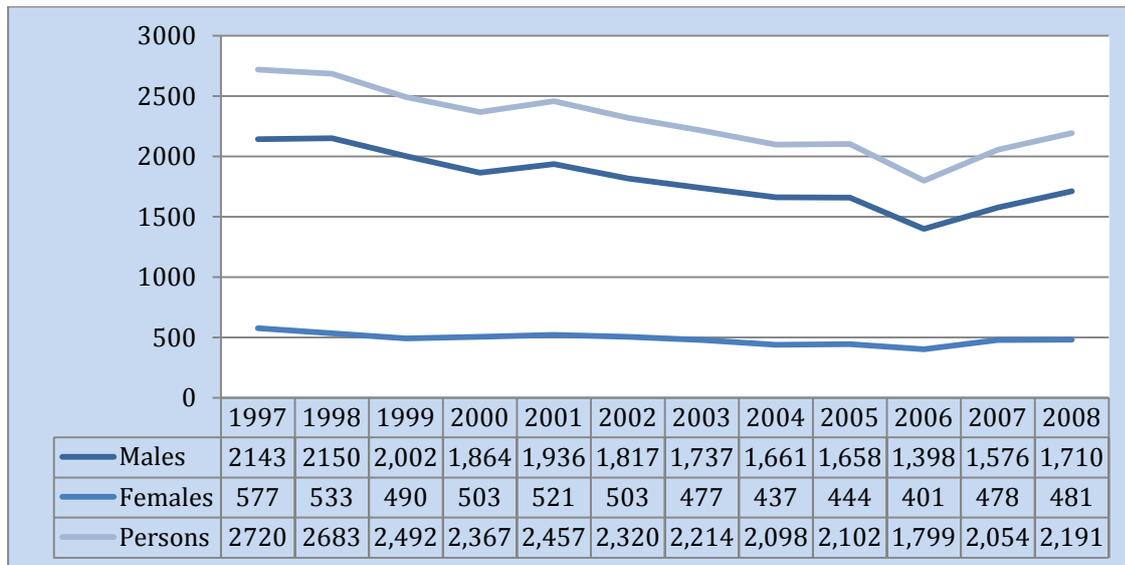


Figure 1: Recorded suicides, Australia 1997-2008

(Sources: ABS 2010, Cat No. 3003.0; 2010 Technical Note No. 3 2007 Revisions; 2007 Cat No. 3309.0)

4. Elevated rates of suicide for rural males

In Australia's regional and remote areas^{iv}, there is cause, on two accounts, for even greater concern with respect to suicide trends. In the first instance, the Department of Health and Ageing (DHA) (2008, Fact Sheet 18) states that suicide rates have risen substantially in these areas over the past three decades, especially among men. Secondly, males in regional and remote areas have substantially higher rates of suicide and self-inflicted injuries than males in Major Cities or than females in non-metropolitan areas (AIHW 2008, PHE 97; AIHW 2007, PHE 95). The risk of suicide is further statistically compounded for men aged 20 to 44 years (ABS 2007, 3309.0); for older men (over 75); and for men undergoing traumatic life events (DHA 2008, Fact Sheet 17).

Nationally, suicide is around times more common in men than women. Considerable publicity has been given in recent years to the comparatively high suicide rates among young rural men and men from Indigenous communities. Minimal attention has been given to statistics that tell us that men of all ages who live in regional or remote areas are also in the 'most at risk' category, even more so if they're senior in age (over 75) or experiencing distress as a result of, for example, prolonged drought conditions, relationship breakdowns and mental and physical health problems.

Our research has a national agenda and, accordingly, we have drawn upon a variety of national data bases in our analysis of secondary data^v. To further substantiate our claims of disparity between the city and the bush, key statistics for Australian males were extracted, examined and summarised. This has permitted us to make some direct comparisons between men living in All Regional and All Remote areas of Australia and their Major City counterparts. As a consequence, we have found evidence for men living in rural or remote areas being among those Australians most at risk of death by suicide.

Furthermore, types of accidents, risk factors and risky behaviour which are sometimes associated with self-harm are more evident in rural Australia than in our cities.

Using current published data based on RAs – which is, unfortunately, somewhat dated – we have calculated Standardised Prevalence Ratios (SPRs) to more clearly illustrate the magnitude of the inequity in regional and remote areas vis-à-vis Major Cities. The rate of 1.0 was assigned to Major Cities areas. Accordingly a ratio of 0.5 for regional or remote areas would indicate half the occurrence rate of Major Cities and a ratio of 2.0 would indicate double that in Major Cities.

Through this analytical approach, higher fatality rates for men in the bush in comparison with their city counterparts become evident as a result of a range of intentional and unintentional injuries and risky behaviour (see Figure 2). These include higher rates of:

- Fatalities from intentional external cause injuries including suicide (for Indigenous and non-Indigenous males) and homicide (data available only at aggregated level for All persons)
- Fatal Motor Vehicle Traffic Accidents (MVTAs) (for Indigenous and non-Indigenous males)
- Other fatal external injuries (for Indigenous and non-Indigenous males)
- Personally risky behaviour (data available only at aggregated level for All males)
- Alcohol short- and long-term risk (data available only at aggregated level for All persons)

Results show that rates of male suicides increased according to the remoteness of areas of usual residence. Specifically, prevalence ratios for male suicides for the years 2002-04 ranged from 1.25 times greater in Inner Regional areas than in Major Cities areas to 2.57 times in Very Remote areas.

Where available data permitted differences between All males and Non-Indigenous males to be distinguished (that is, for suicides, MVTAs and external causes deaths), minimal variations in SPRs were evident for Inner Regional, Outer Regional and Remote areas. Thus, by default, overall mortality rates for suicide, MVTAs and for all external injuries for Indigenous and non-Indigenous males in other than Very Remote areas were similar for the periods examined. Alarming higher SPRs for Indigenous males in Very Remote areas in comparison with All males in those areas are cause for even greater concern about levels of wellbeing for Indigenous men in these areas.

Suicide among farmers has received increasing coverage in both academe and the popular press in recent years. Contemporary Australian research by Judd et al. (2006) found that the elevated rate of suicide in rural areas and more specifically among farmers does not seem to be simply explained by an elevated rate of mental health problems. Individual personality, gender and community attitudes that limit people's abilities to acknowledge or express mental health problems and seek help for these may be significant risk factors for suicide in farmers. This potentially supports earlier research which showed that Australian farmers reflect values of autonomy, independence, and survival (Tanewski et al. 2000; Voyce 1997). Thus farmers might find difficulty in managing compassion towards themselves or others for perceived failure.

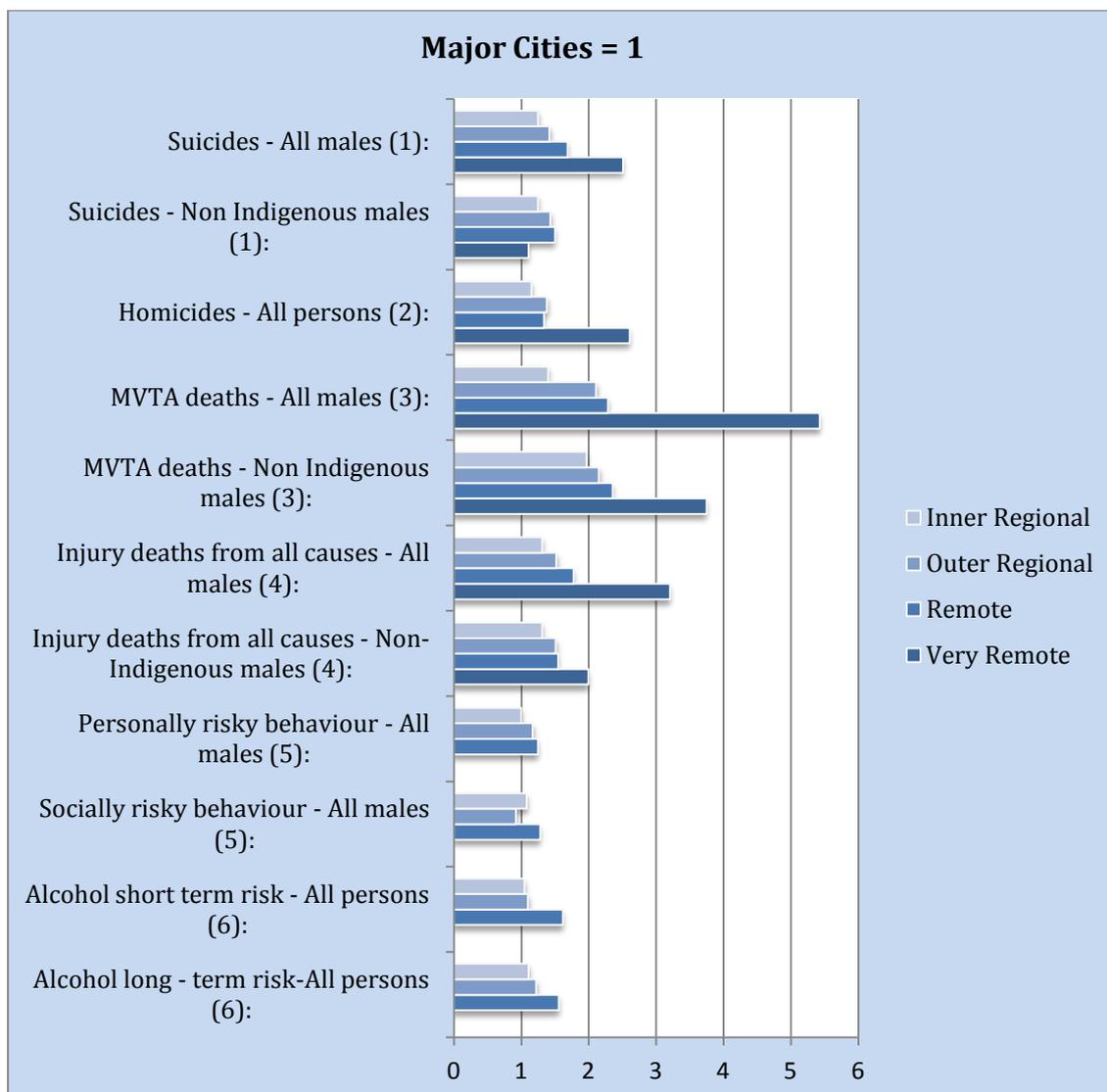


Figure 2: Selected SPRs for death from external causes, by Remoteness Area, Australia 2002-04

(Sources:

1. SPRs for average annual male deaths from suicide, 2002-04; after AIHW 2008, PHE 97.
2. SPRs for deaths from homicide, 2004-05; after Henley and Harrison (2009). As numbers are not large (national total of 215 in the 2004-05 financial year according to Henley and Harrison's reporting), significant fluctuations in homicide deaths between years can occur.
3. Average annual MVTA deaths for males, 2002-04; after AIHW 2008, PHE 97.
4. Average annual male injury 'deaths from all causes, 2002-04; after AIHW 2008, PHE 97; AIHW 2007, PHE 95.
5. SPRs (data for Remote and Very Remote combined) for risky behaviour while intoxicated, persons aged 12 and over, 2004; after AIHW 2008, PHE 97. The AIHW defines personally risky behaviour as working, swimming, boating, driving or operating hazardous machinery while intoxicated with alcohol or an illicit drug. Socially risky behaviour is defined as creating a public disturbance, damaging property, stealing or verbally or physically abusing someone while intoxicated with alcohol or an illicit drug.
6. SPRs (data for Remote and Very Remote areas combined) for all persons aged 14 years or more by short- and long-term alcohol risk status, 2007; after AIHW 2008, PHE 107)

5. Examination of data anomalies

Using statistical data to map patterns of change over time is an important tool for providing sound foundations for understanding and explaining influential factors and also for, where appropriate, affecting change. Unfortunately, producing historical accounts which illustrate trends often proves to be an arduous if not impossible task for researchers due to lack of continuity in data strings and differences in the way data are collected and reported over time. In spite of this, we have teased out some data anomalies with respect to firearms fatalities and MVTAs which beg explanation in the light of contradictory published data. These are discussed in the following section.

Firearm fatalities

Statistics for firearm fatalities over the past decade show, on the one hand, declining numbers of suicide through use of firearms (ABS 2010, 2009, Cat. No. 3303.0; ABS 2008, 2006, Cat. No. 4510.0; Mouzos and Rushforth 2003). The number of accidental, undetermined and legal intervention deaths from firearms, on the other hand, increased at an astonishing rate. Specifically, for the two-year period 2006-07, the annual average number of reported firearm suicides decreased by 33% (to 161) when compared with the five-year annual average of 241 during the period 1998-2002. Over the same time span, 'other' (accidental, undetermined and legal intervention) firearm fatalities increased by a factor of more than four from a five-year annual average of 37 to an annual average of 166 for 2006 and 2007. Figure 3 illustrates the magnitude of the conundrum. Comparative data for 2003-05 are not available (n.a.) in that it could not be sourced. Preliminary data released by the ABS in 2010 for the year 2008 have been included but these values may be understated due to the large number of deaths (561) which were the subject of ongoing coronial investigations at the time data were prepared for release.

Farmers and their associates are arguably more likely than city dwellers to use firearms to self-harm due to the availability of weapons. Even when firearms are correctly registered and securely stored by licenced owners, many other persons (including family members, friends and employees) are often aware of their existence and location and may have legitimate access. Unfortunately, we have not been able to tease out firearms data relevant to people who live and/or work on the land or, for that matter, in rural Australia.

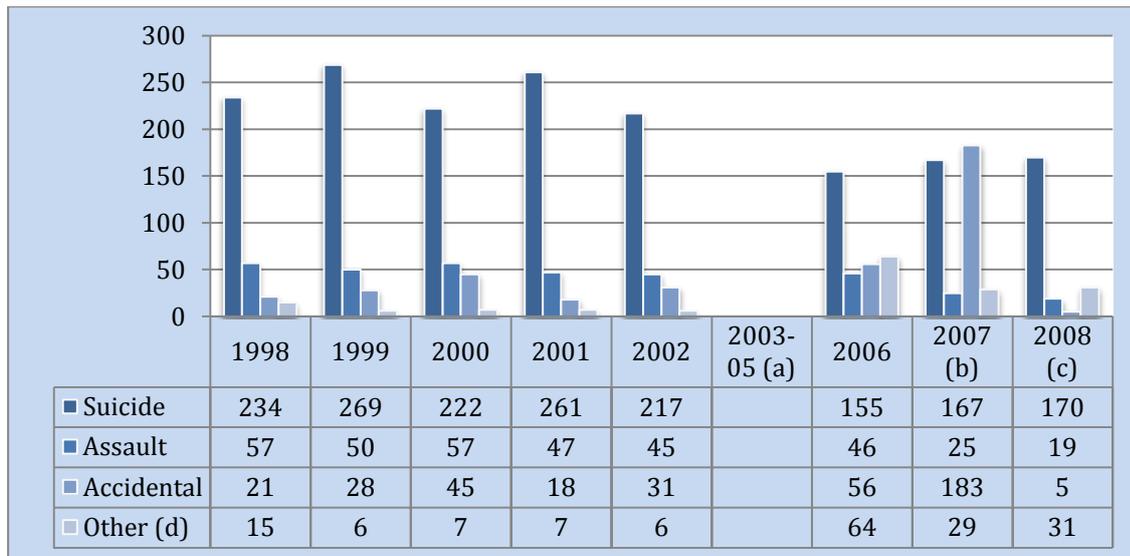


Figure 3: Firearm fatalities, Australia, 1998-2007

- (a) Comparative data not available for 2003-05
 (b) Data for 2007 are as reported in ABS 2009 Cat No. 3303.0; ABS 2007 Revision data published in 2010 did not provide updated statistics for intent with respect to firearms fatalities
 (c) Preliminary data for 2008 may be understated due to the large number of deaths (561) which were the subject of ongoing coronial investigations at the time ABS data were prepared for release
 (d) 'Other' includes accidental, undetermined and legal intervention firearms fatalities
 (Source: after ABS 2010, 2009: Cat. No.3303.0; ABS 2008, 2006: Cat. No. 4510.0; Mouzos & Rushforth 2003)

Motor Vehicle Transport Accidents (MTVAs)

Statistics for road traffic fatalities have illustrated a continuing overall downward trend since about 1970 (ABS 2008, 2007, 2006, Cat. No. 1301.0; Bureau of Infrastructure, Transport and Regional Economics (BITRE) 2010; Department of Infrastructure, Transport, Regional Development and Local Government (DITRD&LG) 2008, 2009). For example the road toll of 3,798 in 1970 (Australian Transport Safety Bureau 2007) was more than 2.5 times the 2009 figure of 1,509 (BITRE 2010) in spite of the population increasing significantly over that time. In fact, the number of deaths from road traffic crashes per 100,000 persons was 30.4 in 1970; in 2008 the rate had dropped to 6.9 (ABS 2010, Cat No. 1301.0). Number of road fatalities per 10,000 registered vehicles has similarly decreased from 8.0 in 1970 to 1.0 by 2008 (ABS 2010, Cat. No. 1301.0).

While these declining rates are encouraging, concerns have been expressed about the reliability of more recent (post 2002) data for fatalities resulting from motor vehicle traffic accidents which are believed to be underestimated, especially for NSW (Henley and Harrison 2009). Indeed, this matter has previously been highlighted in our discussion regarding under-recording of suicide statistics.

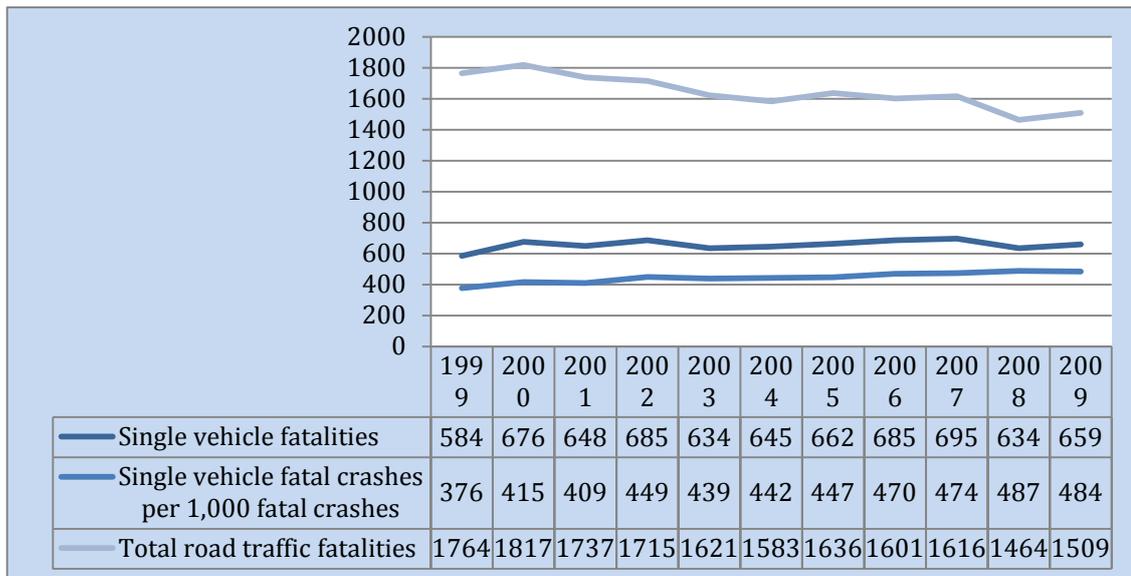


Figure 4: Motor vehicle fatalities and fatal crashes, Australia, 1999-2009

(Source: after ABS 2008, 2007, 2006, Cat. No. 1301.0; Australian Transport Safety Bureau 2007; BITRE 2010; DITRD&LG 2008, 2009)

Nevertheless, despite these apparent overall downward trends and issues about data integrity, data for single vehicle crashes warrant closer examination. In recent years single vehicle crashes where there have been fatalities have increased from 584 in 1999 to peak at 695 in 2007 (ABS 2008, 2007, 2006, Cat. No. 1301.0; BITRE 2010; DITRD&LG 2008, 2009) (Figure 4). Similarly, the proportion of fatal crashes involving single vehicles only increased from 37.6% of total fatal crashes in 1999 to 48.4% in 2009 with this characteristic having become the most common fatal crash type.

There are several potential reasons for these patterns in single vehicle fatalities going against the overall downward trend including, unfortunately, motor vehicles used as mechanisms for intentional harm. In other words, MVTAs may sometimes be undeclared suicides or even homicides. Perhaps more so than with the discharge of firearms, such cases can be difficult for coroners to determine with surety.

Motor vehicle fatalities are more likely to involve male than female drivers; around 80% of driver and motorcyclist deaths over the last five years have been males. Figure 5 which represents deaths by gender for drivers and motorcyclists only (that is, excluding passengers, pedestrians and pedal cyclists) illustrates this factor and also implies that variations in the number of fatalities in recent years are closely related to data for males in charge of motor vehicles. Indeed, the five-year trend for females shows minimal variation in number of fatalities.

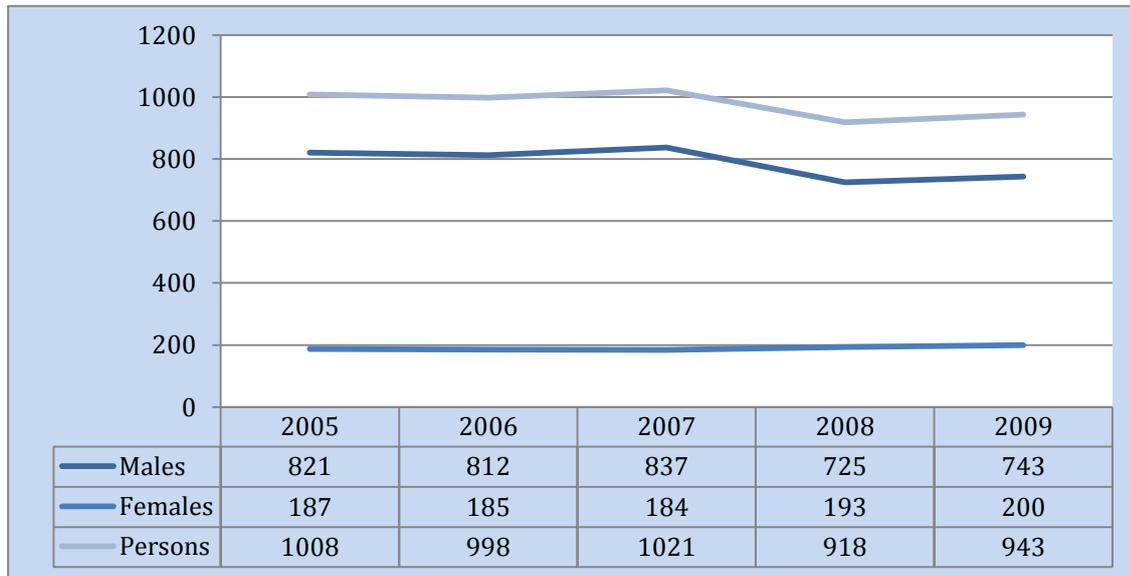


Figure 5: Deaths by gender for drivers and motorcyclists, Australia 2005-09
(Source: BITRE 2010)

6. 'Excess deaths' from suicides in All Regional and All Remote Australia

Concern about the magnitude of the inequity between Major Cities area and rural Australia has been such that, for leading causes of death during the years 2002-04, the AIHW (2008, PHE 97) reported 'excess deaths' in All Regional/All Remote areas by comparison with the Major Cities area. Excess deaths represent the difference between the number of deaths observed in each ASGC Remoteness Area and the number expected if Major Cities age-specific death rates had been applied in each area.

Injury as an external cause of death stood out as being of particular importance in the AIHW (2007, PHE 95) study of mortality due to the large number of excess deaths. For males living outside Major Cities areas, 23% of the total number of excess deaths from all causes was as a result of acute injury. The average annual number of excess fatalities recorded for suicide, MVTAs and from other external injury causes during 2002-04 are shown in Figures 6 and 7 for, respectively, All males and Non-Indigenous males.

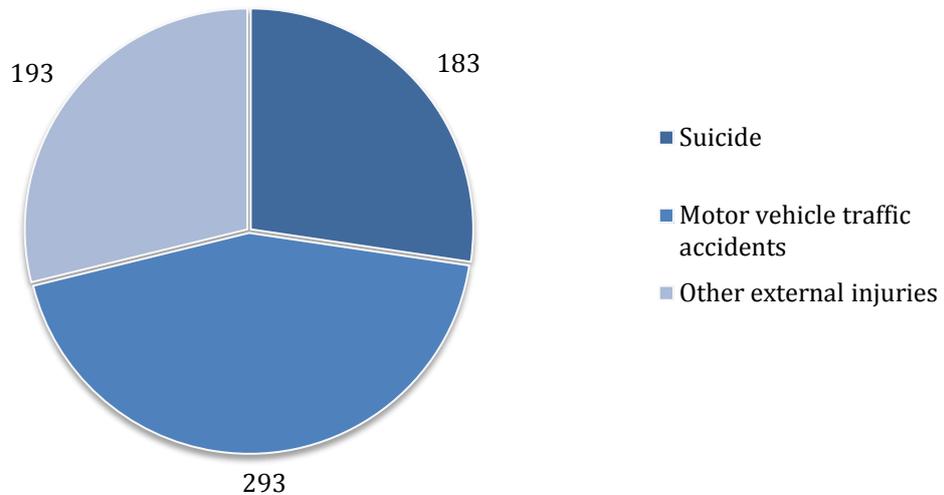


Figure 6: Annual average All male 'excess' injury deaths, Regional and Remote Australia, 2002-04

(Source: after AIHW 2008, PHE 97)

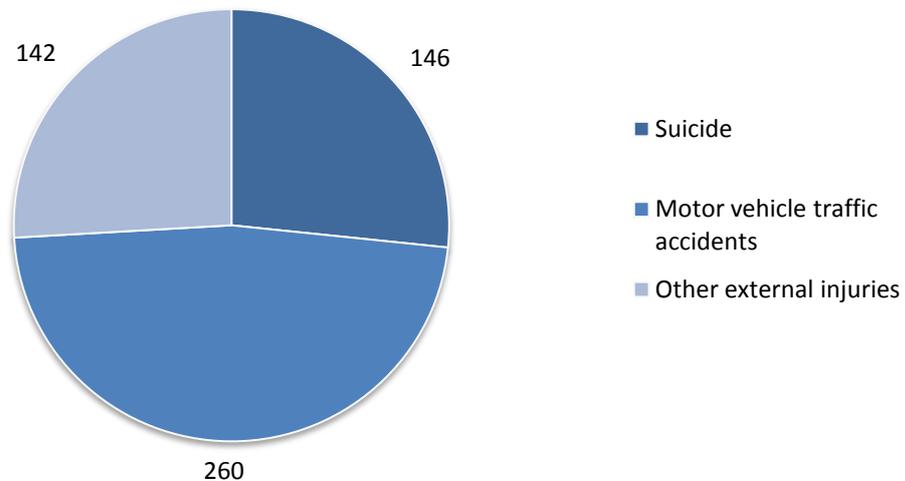


Figure 7: Annual average non-Indigenous male 'excess' injury deaths, Regional and Remote Australia, 2002-04

(Source: after AIHW 2008, PHE 97)

Given the recognised under-reporting of suicides since around 2002 (Henley and Harrison 2009), a more accurate representation of injury death categories in Figures 6 and 7 might show an increase in the suicide excess deaths sector and a concomitant reduction in the Other external injuries category. Reductions might also be anticipated in some non-injury related categories.

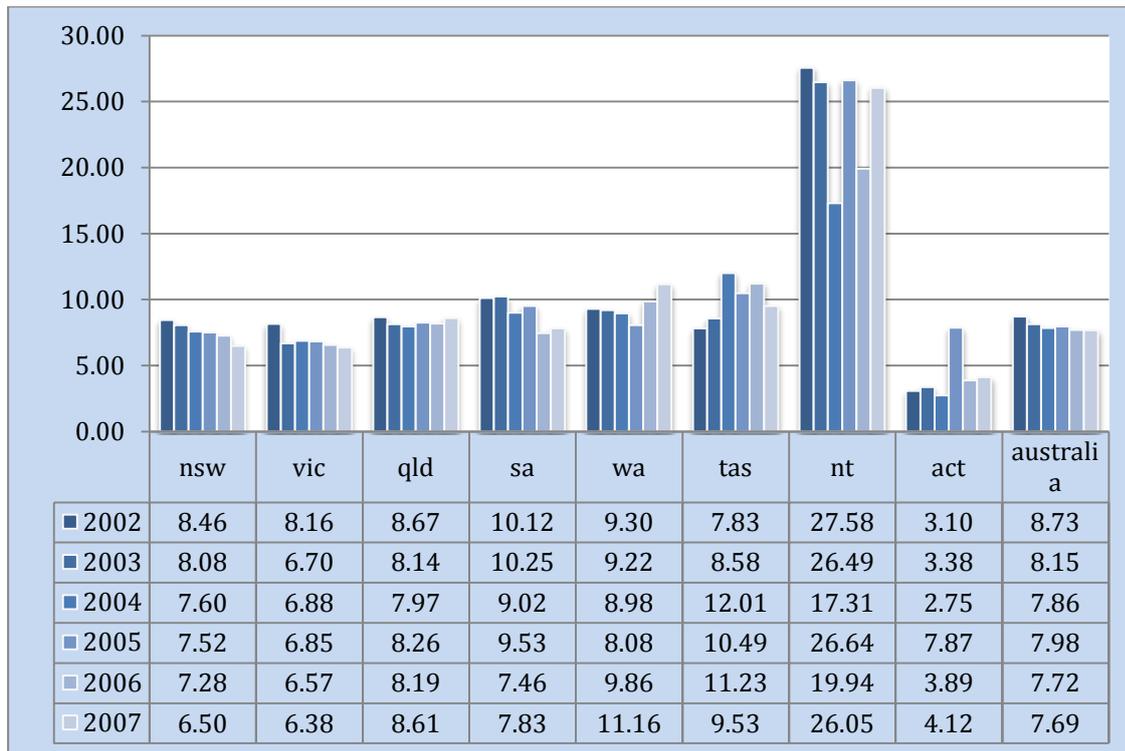


Figure 8: Fatal crashes by State/Territory, Australia, 2002-07

(Source: DITRD&LG 2008, Table 29)

The potential impact of more accurate reporting of MVTA fatalities is unclear given that, on the one hand, some MVTA fatalities, particularly single vehicle accidents, might well have been suicides. On the other hand, the potential under-reporting of MVTA deaths – as has been suggested for some states, especially NSW, based on declining rates over recent years (refer to Figure 8) – could ameliorate this factor.

Excess deaths provide an absolute measure of magnitude and hence a clear understanding of the absolute size of disadvantage in ASGC RAs for particular causes of death in terms of human lives lost. This is evident in Figure 9 which illustrates that 143 more males in All Regional areas committed suicide on average each year during the period 2002-04 than if the same suicide rate for Major Cities areas applied (AIHW 2008, PHE 97). The annual average excess deaths in All Remote areas during the same period totaled 40 males. For non-Indigenous males, All Regional and All Remote excess deaths were, respectively, 134 and 12.

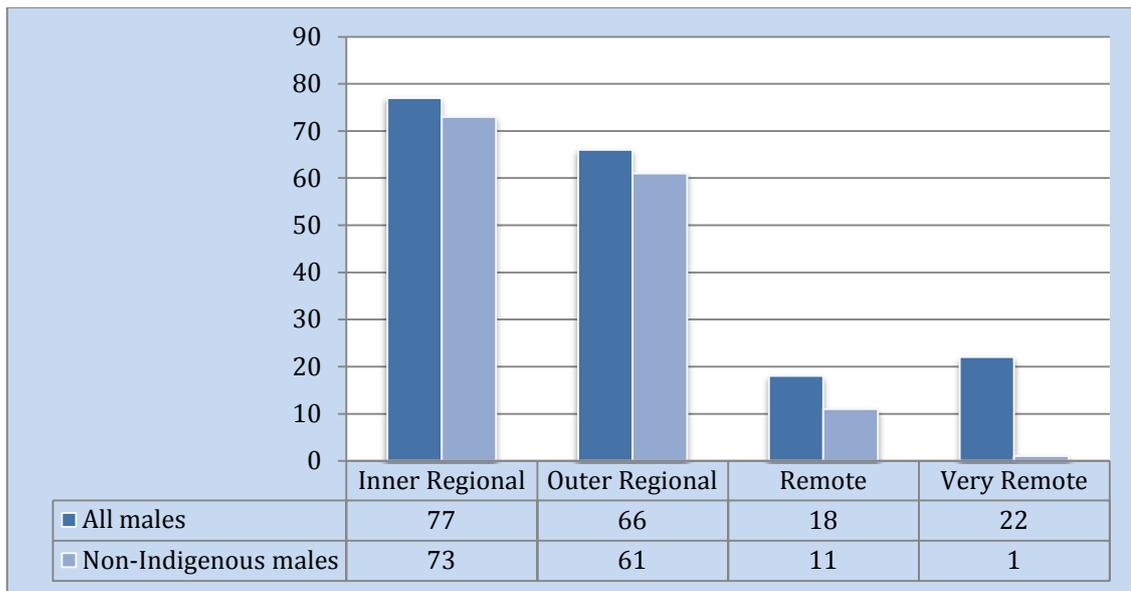


Figure 9: Annual average male suicide excess deaths by Remoteness Area, Regional and Remote Australia, 2002-04
 (Source: after AIHW 2008, PHE 97)

7. Conclusion

Some results from our analysis of secondary data illustrate that All Regional and All Remote areas of Australia have alarmingly elevated national patterns of male deaths as a result of acute external causes, particularly through suicides, compared with Major City dwellers. Additionally, we have highlighted specific areas of statistical reporting which may require further investigation and clarification. These data also generally support the contention that some suicide cases may have been determined to be other than intentional self-harm with firearms and motor vehicles among the mechanisms used.

More accurate representations of statistics for suicide are essential to better inform not only research but also resource allocation, procedures, policies and programs that address relevant issues with the view to ameliorating human suffering. Results can be used to target proactive and preventative programs of risk management for threatened populations, especially men living in rural Australia. Compassion or concern for the wellbeing of surviving family members, friends and/or communities may be reasoned as justification for the private or public masking of individual occurrences of suicide. Unfortunately, the cumulative effect of under-reporting only serves to diminish the extent of the problem, arguably to the long-term detriment of many.



Endnotes

ⁱ This series of reports has used, where possible, the ABS Australian Standard Geographical Classification (ASGC) for Remoteness Areas (RAs) to differentiate between the city and the bush and to distinguish varying levels of 'rurality' (ABS 2003: Census Paper No. 03/01). RAs are classified as Major Cities (MC), Inner Regional (IR), Outer Regional (OR), Remote (R) and Very Remote (VR). Refer to the introductory report for further information on recognised variations to these classifications.

ⁱⁱ For the period 2004-05, Henley and Harrison (2009) used data provided by the NCIS which produced a significantly higher estimate (by 15.2%) of suicides (2,341 in number) when compared to data provided by the ABS (2,033 suicides).

ⁱⁱⁱ External causes of death relate to cases where the underlying cause of death is external to the body.

^{iv} This series of reports has used, where possible, the ABS Australian Standard Geographical Classification (ASGC) for Remoteness Areas (RAs) to differentiate between the city and the bush and to distinguish varying levels of 'rurality' (ABS 2003: Census Paper No. 03/01). RAs are classified as Major Cities (MC), Inner Regional (IR), Outer Regional (OR), Remote (R) and Very Remote (VR). Refer to the introductory report for further information on recognised variations to these classifications.

^v Some administrative and survey sources have not used the ASGC RA classifications.

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