Youth Suicide in New South Wales: Urban-Rural Trends 1964-88

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The rise noted in Australian youth suicide over the past twenty-five years is part of a wider trend in numerous other Western countries (Kosky 1987). This paper reports an analysis of the official suicide statistics for young people aged 10 to 19 in New South Wales. It particularly considers firearm suicides and urban-rural trends.

Firearm suicide has received increasing attention in literature from the United States. Boyd and Moscicki (1986) noted that the firearm suicide rate for persons aged 10 to 24 years in the United States has increased from 2.3 to 5.5 per 100,000 in the years 1933 to 1982, whereas the increase in the non-firearm suicide rate for the same group over the same period was only from 2.5 to 3.3. The most dramatic rise in the firearm suicide rate has occurred since 1970, especially among males aged 15 to 24. Within this group, the rate of rise for suicides for 15 to 19-year-olds in this period was almost double that for persons aged 20 to 24 years (Schowalter 1990; Saltzman et al. 1988). In conjunction with this, Boyd and Moscicki (1986) note that in the 1960s and 1970s, there was a substantial increase in the number of civilian firearms in the United States. Firearms have therefore emerged in that country not just as a civil rights but also as a major public health issue.

Systematic published reports on urban-rural trends are rare. Thompson (1987) has noted, in a study of childhood and adolescent suicide in Manitoba, Canada, that native Indian males and rural Caucasian males suicided significantly more frequently and at younger ages than their urban counterparts. Ross and Davis (1986) have noted an exceedingly high rate of suicide and attempted suicide in a northern Canadian native community. An National Institute of Mental Health (NIMH) study of adolescents in rural Minnesota found that in one month, 30 out of every 1,000 had attempted suicide, compared with the national average of 2 per 1,000 (Rosenberg 1986, quoted in Forrest 1988).

Methodology

Suicide figures for males and females aged 10 to 14 and 15 to 19 were obtained from the NSW Bureau of Statistics for the years 1964 to 1988. Methods of suicide were coded according to the International Classification of Diseases. Information was obtained about the subject’s local residential area, and subjects were classified according to whether they usually lived in the Sydney statistical division (SD), the Wollongong or Newcastle statistical subdivisions (SSD), the rural balance of NSW (divided into rural cities, municipalities, and shires) and out of state. Five five-year periods have been used in many of the figures shown. This was particularly convenient since census years fell in the middle of these five-year periods, thus enabling suicide rates to be calculated using the population figures obtained in the census years.
Tables 1 to 4 give the definitions used in this analysis of official suicide statistics in New South Wales.

Table 1

Sydney SD = Sydney Statistical Division

Inner Sydney
Eastern Suburbs
St George-Sutherland
Canterbury-Bankstown
Fairfield-Liverpool
Outer South Western Sydney
Inner Western Sydney
Central Western Sydney
Outer Western Sydney
Blacktown-Baulkham Hills
Lower Northern Sydney
Hornsby-Ku-Ring-Gai
Manly-Warringah
Gosford-Wyong
Table 2

Newcastle SSD = Newcastle Statistical Subdivision

It is part of Hunter SD (Statistical Division). It and includes:

- Cessnock (C)
- Lake Macquarie (C)
- Maitland (C)
- Newcastle (C) Inner
- Newcastle (C)
- Remainder
- Port Stephens (S)

It excludes Hunter SD balance, which is defined as rural:

- Dungog (S)
- Gloucester (S)
- Great Lakes (S)
- Merriwa (S)
- Murrurundi (S)
- Muswellbrook (S)
- Scone (S)
- Singleton (S)

Wollongong SSD = Wollongong Statistical Subdivision

Part of Illawarra SD (Statistical Division). It includes:

- Kiama (M)
- Shellharbour (M)
- Wollongong (C)

It excludes Illawarra SD balance which is defined as rural:

- Shoalhaven (C)
- Wingecarribee (S)
Table 3

**Rural NSW = NSW Minus Sydney SD, Newcastle SSD, Wollongong SSD**

**Rural Cities**

- Shoalhaven
- Lismore
- Coffs Harbour
- Grafton
- Greater Taree
- Tamworth
- Armidale
- Dubbo
- Bathurst
- Orange
- Greater Lithgow
- Queanbeyan
- Goulburn
- Wagga Wagga
- Griffith
- Albury
- Broken Hill

(1986 youth population = 94,060)

**Rural Municipalities**

- Casino
- Glen Innes
- Deniliquin
- Hastings

(1986 youth population = 10,230)

**Rural Shires**

- Hunter SD balance (SSD)
- Illawarra SD balance (SSD)
- Richmond-Tweed (SD)
- Mid-North Coast (SD)
- Northern (SD)
- North Western (SD)
- Central West (SD)
- South-Eastern (SD)
- Murrumbidgee (SD)
- Murray (SD)
- Far West (SD)

Total of 111 shires

(1986 youth population = 130,574)
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Table 4

Definition used for City/Municipality/Shire

City:
25,000 Pop. or greater
independent
not suburb of any other municipality
OR 150,000 Pop.
distinct character or entity as a centre of population

(Local Government Act Part 2 Section 1003)

Municipality:
'administrative unit under the act'

(Section 1038)

Shire:
Extraneous to the major cities
towns and villages encompassing rural tracts of land

(Section 1046)

Results

It is clear that suicides for youth have increased in NSW since 1964, both in absolute numbers and per 100,000. The overall rise in youth suicide has been from 2.8 per 100,000 in the 1966 quintade to 4.3 per 100,000 in the 1986 quintade, that is an increase of 1.5 deaths per 100,000 (see Figure 1). However, as we will see, this relatively small increase in overall suicide rate conceals vastly greater increases in certain subgroups of the NSW youth population.

There was only one recorded Aboriginal suicide in this group since 1981, when recording began. Aboriginal deaths are thought to be generally underestimated in NSW, there being a discrepancy between Bureau of Statistics and Health Department figures (Coleman, personal communication). Thus suicides are also probably underestimated.

Suicides by age in years and sex

Older youth are more likely to suicide. Considerable increases are seen in males from age 15, with the largest single increase being in the 17th year. In females, the rate increases less sharply, and plateaus in the 16th and 18th years (see Figure 2).
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Figure 1

Rate of Youth (10-19 Years) Suicide per 100,000
1964-88

Figure 2

Age of Male and Female Suicides
NSW, 1964-88
Suicides for age groups, sex, and quintades

The major contribution to the overall increase in youth suicide is a substantial increase in 15-19 year boys, among whom the rate per 100,000 has increased during every quintade since 1964. It has gone up from 7.0 per 100,000 in 1964-68, to 13.2 per 100,000 in 1984-88 (see Figure 3). The average annual rate for 15 to 19-year-old girls has not increased over the last 25 years (see Figure 3).

Figure 3
Suicide Rate Males and Females (15-19 Years) per 100,000
NSW, 1964-88

The 10 to 14 year group constitutes only 6.1 per cent (45) of the total suicides (735) for the 25 years. The number of female suicides in this group is very small (11), and rates are not increasing. It is possible that boys of 10 to 14 years are increasing in the frequency of suicide, but only slightly (see Figure 4).

Methods of suicide for sex and age

The major method of suicide has been firearms, followed by poison, hanging, and industrial gas (see Figure 5). Boys use firearms, followed by hanging, poisoning, and industrial gas, while poisoning is easily the most common cause of suicide in girls, followed by firearms and hanging (see Figure 6). Poisoning is the only method in which girls' rates of suicide exceed boys.
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*Figure 4*
Suicide Rate Males and Females (10-14 Years) per 100,000
NSW, 1964-88

*Figure 5*
Mode of Youth Suicide (10-19 Years)
NSW, 1964-88
The major consistent change has been in 15 to 19-year-old boys' firearm suicide rates, which have risen from 3.4 to 5.6 per 100,000 (see Figure 7). There has also been a substantial consistent increase in boys' hanging suicides since 1976 (see Figure 8). Poisoning deaths in females have decreased substantially over the twenty-five year period (see Figure 9, Table 5).

Urban-rural trends

Overall, while most of the suicides (61.5 per cent) lived in the Sydney SD, 6.2 per cent lived in Newcastle and Wollongong, 28.6 per cent lived in rural areas, and 3.7 per cent lived out of state.

Over the twenty-five years in Sydney SD, there has been only a slight increase in the youth suicide rate, from 3.4 in 1966 to 3.8 in 1986. The numbers in the provincial cities of Newcastle and Wollongong are small, and their combined rates have stayed fairly stable overall. The youth suicide rates in rural NSW have increased consistently over the twenty-five years, from 1.6 in 1966 to 6.1 in 1986 (see Table 6).
Figure 7

Firearm Suicides: Males and Females (15-19 Years) per 100,000 NSW, 1964-88

Figure 8

Hanging Suicides: Male and Females (15-19 Years) per 100,000 NSW, 1964-88
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Figure 9

Poisoning Suicides: Male and Female (15-19 Years) per 100,000
NSW, 1964-88

Table 5

Poisoning Suicides for Males and Females (10-19 Years) in NSW, 1964-88

<table>
<thead>
<tr>
<th>Years</th>
<th>Number of Poisonings</th>
<th>Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964-1968</td>
<td>42</td>
<td>1.84</td>
</tr>
<tr>
<td>1969-1973</td>
<td>40</td>
<td>1.62</td>
</tr>
<tr>
<td>1974-1978</td>
<td>40</td>
<td>1.58</td>
</tr>
<tr>
<td>1979-1983</td>
<td>28</td>
<td>1.05</td>
</tr>
<tr>
<td>1984-1988</td>
<td>25</td>
<td>0.92</td>
</tr>
</tbody>
</table>
Youth Suicide in New South Wales: Urban-Rural Trends

Table 6

Total Suicides for Youth (10-19 Years) in NSW by Place of Residence, 1964-88

<table>
<thead>
<tr>
<th>Years</th>
<th>Sydney No.</th>
<th>Rate/100,000</th>
<th>Rural No.</th>
<th>Rate/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964-1968</td>
<td>78</td>
<td>3.4</td>
<td>17</td>
<td>1.6</td>
</tr>
<tr>
<td>1969-1973</td>
<td>87</td>
<td>3.5</td>
<td>35</td>
<td>3.2</td>
</tr>
<tr>
<td>1974-1978</td>
<td>99</td>
<td>3.9</td>
<td>42</td>
<td>3.7</td>
</tr>
<tr>
<td>1979-1983</td>
<td>84</td>
<td>3.2</td>
<td>44</td>
<td>3.7</td>
</tr>
<tr>
<td>1984-1988</td>
<td>104</td>
<td>3.8</td>
<td>72</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Urban-rural sex differences

Rural municipalities are few in number, and contribute few suicides. For purposes of this analysis, rural municipalities have been combined with rural shires.

The youth (10 to 19 years) population in rural cities has increased from 65,340 in 1966 to 94,060 in 1986, while rural shires/municipalities have slightly decreased from 142,371 to 140,804.

Of the rural suicides 35.9 per cent have occurred over the last five years (that is 20 per cent of the time), and this is largely a phenomenon of the older group (15 to 19-year-olds).

The rates per 100,000 for 15 to 19-year-old males in rural cities have more than doubled, from 5.1 in 1966 to 12.5 in 1986, whereas in rural shires/municipalities they have increased sixfold, from 3.5 in 1966 to 21.6 in 1986 (see Figure 10). The 15 to 19-year-old female rate in rural cities has fluctuated, whereas there is some suggestion that the female rate is climbing in the rural shires/municipalities (1.5 in 1964-68 to 4.9 in 1984-88), though the numbers are small (see Figure 11).

Urban-rural differences in method

Firearm youth suicides in rural areas have been steadily increasing for 15 to 19-year-old youth over the 25 years, while firearm youth suicides in the Sydney SD have remained fairly stable (see Figure 12). Moreover, the increase in rural firearm youth suicide rates is a male phenomenon, with female numbers (13) being too small to draw conclusions.

Firearm suicide rates in 15 to 19-year-old rural city males have increased from 3.8 (1964-68) to 6.6 (1984-88), whereas in the rural shires, the rates have gone up almost sevenfold from 2.3 to 15.2 per 100,000. Of rural shires, 75 per cent of 15 to 19-year-old male suicides have died in this way. Hangings have also increased over the 25 years both in rural cities and rural shires, though total numbers are too small to draw conclusions (total of 17 deaths).
Figure 10
Suicide of Males and Females (15-19 Years) by Area of Residence per 100,000, 1964-88

Figure 11
Suicides of Females (15-19 Years) by Area of Residence per 100,000 for 1964-88
Discussion

It is clear that there has been a major increase in the rate of rural suicides in 15 to 19-year-old boys over the last quarter century, especially using firearms. The problem is predominantly found in rural shires and municipalities, and to a lesser extent in rural cities. We believe that a shift of this magnitude using such unambiguous methods as firearms and hanging, cannot be simply discounted as artefactual due to a shift in coroners' verdicts from 'undetermined' to 'suicide' in recent years (Kosky 1987), though this could be considered as a minor contributory factor.

There are a number of possible reasons for this being a peculiarly rural phenomenon, and particularly acute in what is known colloquially as 'the bush', that is the shires and municipalities. The first is that the Australian rural sector has suffered a major downturn economically over the last twenty-five years, with restriction of overseas markets, consolidation of properties and the collapse of small business. This is correspondingly reflected in unemployment and lower incomes, and poverty, malnutrition and substandard housing that afflicts many rural communities (Forrest 1988).

The second is that 'the bush' suffers 'the tyranny of distance' (Blainey 1983) and a corresponding lack of services and resources, including mental health resources.
A third more speculative but equally important reason is related to the changing perception of 'the bush' by those in rural and urban communities. 'The bush' is historically powerfully tied to Australian identity. It is often idealised as a setting where rustic folk work hard and maintain mental and physical health through self-sufficiency—an ethos which has spawned wilderness camps to rehabilitate drug addicts. As Australia has moved away from dependence on primary industry, the bush has assumed a less conspicuous role in shaping the national image. There has been a breakdown of close-knit rural communities and challenges to conservative value systems that have previously enabled endurance in the face of natural disasters and hardships.

The issue of values and beliefs in rural communities is likely to be important for several reasons. Firstly, it seems probable that there is a stark disparity in rural areas between traditional views about sex roles and male self-reliance (which perhaps is most enduring in these areas) and the reality of diminishing opportunities and rewards (for example high youth unemployment, people being forced off the land).

Secondly, it is also probable that the ideal of self-reliance and an individual moral attitude to human endeavour (‘you're what you make of yourself’) makes it easier for mental illness to be seen as a moral failing, and for wider structural and social problems to be seen as unimportant. In smaller communities, distress may be more conspicuous, and confidentiality more of a problem. These factors may make it more difficult for young men to seek help. There is a crucial relevance to suicide prevention programs at this point, which will be discussed below.

Thirdly, there may be more pressure for adolescents to leave home at an earlier age in 'the bush' than in an urban setting for economic reasons. This may also be a more critical event for a young person bound to a close-knit family/community of origin which is also depleted or in crisis, and which cannot act as a strong emotional 'launching pad'.

The reason for the increasing rate of firearm deaths relates to the availability of guns, especially in rural areas, where gun ownership is around three times higher than in urban areas (Marsden 1988). There is a strong link between firearm availability and firearm suicides, assaults and crime in urban and rural Australia, as there also is overseas (Wilson 1983, Marsden 1988). The case for gun control has been established beyond reasonable doubt on other data (Wilson 1983, Harding 1983). There is no uniformity in firearm licensing, prohibition and registration laws between the states, and a stockpile of unregistered weapons exists in NSW (Firearms Licensing Branch, NSW Police, personal communication). The national firearms inventory is rising at a rate that exceeds population growth (Walpole 1988; Anderson 1985), and is now high by international standards (Marsden 1988). It is a major factor working against effective gun control. We believe that our study lends further convincing data to support this conclusion.

There is also some suggestion that rates of alcohol abuse are higher in rural areas (Forrest 1988), in which case the likelihood of firearm death in the vulnerable may be compounded. Brent et al. (1987) in their study of deaths of 10 to 19-year-olds in Allegheny County, Pennsylvania, showed that firearms and alcohol are risk factors for suicide. Suicide victims who used firearms were about five times more likely to have been drinking than those who used other means. Moreover, they noted that the proportion of suicide victims that had detectable blood alcohol levels rose from 12.9 per cent in 1968-72 to 46.0 per cent in 1978-83. Hoberman and Garfinkel (1988) also reported that 28 per cent of 229 suicides had definitely, and 17 per cent probably, consumed alcohol unrelated to the cause of death within 12 hours of death. Alcohol may have a catalytic role in suicidal behaviour, especially with firearms. The Centers for Disease Control Surveillance Summaries have noted that prevention should include a decrease in alcohol use by, and firearms availability to, teenagers (Saltzman et al. 1988).
We do not have reliable information about changing rates of alcohol abuse in rural settings, and lacking coronial information, cannot comment on the frequency of alcohol abuse in the subject's history or in association with the fatal shooting. These are vital issues for further study.

The question of whether these suicided rural adolescents are suffering major depressions is moot. It is the authors' opinion that the magnitude of the recent change is unlikely to be accounted for by a rise in the rate of the endogenous (biological) form of major depression, though it is likely that major depressions of other origins would contribute to the outcome in many of these adolescents. Many of the subjects could be expected to have depressive features in association with other diagnoses, for example, conduct problems (Shaffer et al. 1989) and a family history of chronic discord, mental illness and suicidal behaviour. However, we surmise that increasing rates of alcohol abuse, and increasing availability of a very lethal method (firearms) are making the most significant differences to the rates.

We do not have information at this stage about the social class of the suicided young people or their parents. Those owning guns are more likely to be younger men working in primary industry or blue-collar jobs (Marsden 1988). One might expect from what has been said that those who kill themselves may be part of transgenerational cycles of social disadvantage that they cannot see themselves as escaping. We have noted a drift to the rural city from 'the bush'; it is uncertain whether the least or most suicidal are moving.

A final crucial observation is the gap between suicide prevention programs and those they target. Rural shires and their young people are under-resourced in relation to all health—including mental health—needs, and suicide prevention programs may potentially fall into the trap of forgetting those who are least visible. Moreover, not only do they not have advocates but there is some suggestion from the preceding comments that they might reject such advocacy. It is possible that they would see such programs, as they would see help-seeking in general, as an alternative for the weak, and avoid or dismiss them.

Conclusion

The most significant implications of these findings are the urgent need to assess, advocate, and plan for the mental health needs of rural adolescents, and to design and implement suicide prevention programs in 'the bush'. In view of the comments in this paper, the designers will have to anticipate and clarify potential stumbling blocks with their target audiences. The other urgent need is to take the need for gun control into the public arena again.

References


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