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EPIDEMIOLOGY OF SUICIDE AND ATTEMPTED SUICIDE IN THE SOUTH EASTERN REGION

Although the overall suicide rate has remained relatively stable in Australia for 100 years at about 11 per 100,000 population per year, there have been significant changes in the pattern of suicide. In recent years there has been a dramatic increase in the suicide rate in adolescent males and a gradual increase in adolescent females[1,2,3,4,5]. Waters (personal communication) has indicated we are now seeing a bimodal distribution of suicide, with young and middle-aged males having the highest rates.

In NSW between 1969 and 1987 female mortality rates for suicide fell, while those for males fluctuated. In the 15-44 age group suicide was the third leading cause of death. Of particular concern have been the trends in suicide among young males. Since 1969 the age-specific death rate for males in the 15-24 age group has been increasing by an average of 2.9 per cent a year. Since 1984 this trend has been even more dramatic[6].

Between 1964 and 1988 the suicide rate in males in the 15-19 age group reportedly doubled in rural cities and increased sixfold in rural shires[2]. There has also been an increase in the use of firearms as the suicide method among young males.

Because of concerns about an apparent increase in suicide in the South Eastern Health Region, Mental Health Services asked the Public Health Unit to make an epidemiological investigation of suicide in the Region to assist planning for preventive measures.

METHODS

Mortality

We obtained mortality data through the NSW Health Department for the 15 years 1973-1987. We looked at age, sex, date of death, local government area of residence and suicide method.

Attempted suicide

We analysed the occurrence of attempted suicide for the five years 1986-1990. Attempted suicide was defined as non-fatal, self-inflicted damage with self-destructive intention[7]. The indicator of attempted suicide used was cases transported by the Regional Ambulance Service (excluding the shire of Wingecarribee). A survey of general practitioners[8] suggested about 50 per cent of people who received medical attention after suicide attempts used the ambulance service.

Analysis

Denominator data were derived from Census information collected during 1976, 1981 and 1986. Beyond 1986 we assumed a 2 per cent per annum population increase.

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Epidemiology of suicide

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Rates were analysed separately for rural shires, rural cities and south coast shires, as well as for the total Regional population. Regression analyses were performed to test for temporal trends in mortality rates. The log-rate was entered as the dependent variable and year as the independent variable.

RESULTS

Suicide deaths

There were 263 cases of suicide (213 males, 50 females) recorded in the 15 years between 1973 and 1987. The most common suicide methods were firearms (48 per cent, N=127), gas (20 per cent, N=52), hanging (16 per cent, N=42) and poisoning (8 per cent, N=22).

Male suicide rates fluctuated between 1973 and 1978. However, from 1979 to 1987 male suicide rates rose by an average of 5.8 per cent per year (r=0.85, p=.004). For the five years 1973-1977, the average annual suicide rate was 14.4/100,000 (N=56), and this increased to 19.1/100,000 (N=90) for 1983-1987 (Figure 1).

Female suicide rates fluctuated over the 15 years with no discernible trend. The average annual female suicide rate was 5.4/100,000 (N=18) in 1973-1977 and 2.9/100,000 (N=13) in 1983-1987 (Figure 1).

In all age groups male suicide rates exceeded female rates (Figure 2). During 1983-1987 male suicides peaked in the 20-24 age group (48.1/100,000 per year, N=14) and in the 40-49 age group (45.0/100,000 per year, N=20). Female suicides peaked in the 50-59 age group (11.28/100,000 per year, N=4). The average mortality rate in the period 1983-1987 for males 15-24 years was 37.6/100,000.

There were 14 cases of male suicide in the 15-19 age group. As with males overall, suicides in this age group have increased; almost half (40 per cent, N=6) occurred in the last five years of the study. There were no female adolescent deaths.

Around half of all males (54 per cent) and females (46 per cent) who committed suicide were from rural shires, 20 per cent of males and 25 per cent of females were from coastal shires and 26 per cent and 28 per cent respectively were from rural cities. In the 15-19 age group almost three-quarters (71 per cent) were from rural shires.

Age and sex differences were found in the suicide method.

FIGURE 1

TRENDS IN SUICIDE RATES
SOUTH EASTERN REGION NSW 1973-1987

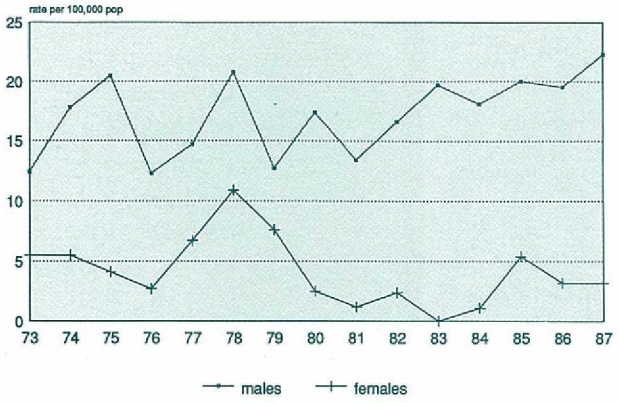


FIGURE 2

AVERAGE ANNUAL SUICIDE RATES BY AGE
SOUTH EASTERN REGION, NSW 1983-1987

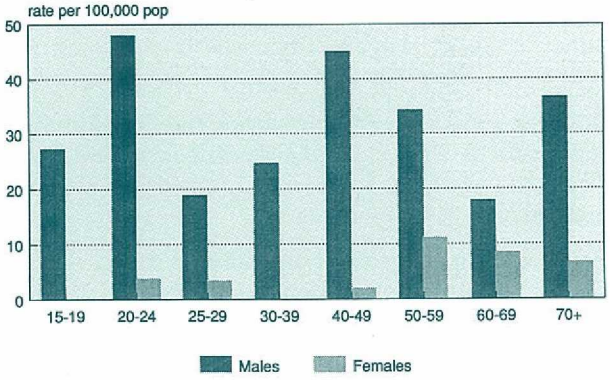


FIGURE 3

ATTEMPTED SUICIDES, S.E.R.
CASES TRANSPORTED BY AMBULANCE
1986-1990

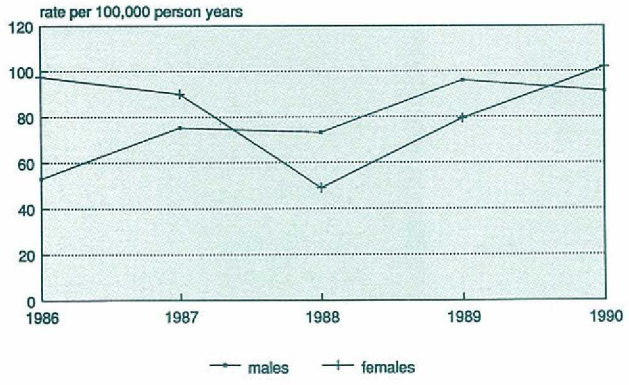
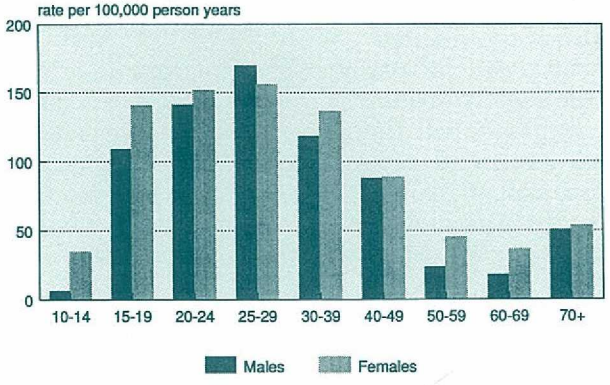


FIGURE 4

AVERAGE ANNUAL ATTEMPTED SUICIDE
SOUTH EAST REGION
TRANSPORTED BY AMBULANCE 1986-1990



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There was only one female death caused by firearms. Among males, however, firearms were used by 86 per cent (N=12) in the 15-19 age group, 61 per cent (N=21) in the 20-24 age group and 57 per cent (N=24) in the 40-49 group.

Attempted suicide

There were 603 cases of attempted suicide (289 males, 314 females) transported by ambulance between 1986 and 1990. The average male rate was 15.5/100,000 person years and the average female rate was 16.8/100,000 person years. The main methods used were poison (78 per cent, N=469) and lacerated wrists (14 per cent, N=85).

Male suicide attempts increased by an average of 13 per cent per year (r=0.90, p=.04) between 1986 and 1990 (Figure 3). Female suicide attempts fluctuated over the same period (Figure 3).

The highest attempted suicide rates were for the 20-39 age group. Males and females attempted suicide at similar rates in most age groups (Figure 4). The average annual female rate in the 10-19 age group notably exceeded the male rate (84.7/100,000 person years, N=50 and 56.1/100,000, N=34 person years respectively).

In contrast to deaths, both males and females who attempted suicide were more likely to be from rural cities (male 49 per cent, female 45 per cent) than from coastal shires (male 30 per cent, female 30 per cent) or rural shires (20 per cent, 24 per cent).

The sexes differed in the method of attempted suicide chosen. In the major category, overdose of drugs and other poisons, females accounted for 80.6 per cent (N=253) and males 70.6 per cent (N=204) of the cases. The frequency of the next major cause was similar — 15.9 per cent (N=46) of males and 12.4 per cent (N=39) of females cut their wrists.

Discussion

It has been widely acknowledged that changes in suicide rates are difficult to detect as suicide rates fluctuate. The population of the South Eastern Region is small (184,297 in 1986) and suicide data are therefore relatively sparse. Caution must be used in the interpretation of rates based on small numbers of cases. Despite these limitations, changes in the Regional patterns (i.e. increases in male suicide and attempted suicide) are consistent with changes reported elsewhere[6]. The average suicide rate for the years 1983-1987 was 11.2/100,000 — the average rate for Australia this century[1].

In the male population the highest suicide rates were found in young and middle-aged males. The suicide rate for young males in the 15-24 age group was higher than the NSW rate for this age group of 23.9/100,000[6]. This is consistent with studies by Dudley et al[2] indicating that the rate of youth suicide is higher than in urban areas.

The major cause of death in males was the use of firearms. We found that the frequency of use of firearms was highest in adolescent males[2] and their use declined with age.

The data on attempted suicides provided a more timely indicator of suicidal behaviour in the Region. The pattern found was generally in agreement with the suicide data as the upward trend in rates of attempted suicide was found only in the male population.

The rate of attempted suicide was similar for males and females but the variation in the methods chosen accounts for the much higher mortality rate in males. Females generally used less violent methods than males. Poisonings accounted for 80 per cent of cases of attempted suicide but only 8 per cent of deaths.

Fatal outcomes were more likely in rural shires while non-fatal events were more likely to occur in urban areas. This may be related to the differing availability of ambulance transport and medical care in urban and non-urban areas, or it may relate to the greater use (and, perhaps, availability) of firearms in non-urban areas.

Conclusion

This study established that there has been an increase in suicide rates in the male population of the South Eastern Region to 1987. An indication that this trend continued to 1990 was found in the data on attempted suicides. Because of the low rates of suicide, we cautiously conclude that the changing pattern of suicide in NSW is sufficiently robust to be observed in a small population.

Those most likely to attempt suicide, successful or unsuccessful, were young people and middle-aged males. Attention should not be focused only on males. Although the female suicide rate was much lower than the male rate, females attempted suicide at a similar rate to males.

Regional Mental Health Services plan to develop an education program for health workers to highlight the risk of suicide in rural populations and enhance the skills needed to identify individuals at risk and treat depression and suicidal thoughts. They also plan to establish a network of support services and will be able to use the results of this study to assist in focusing attention appropriately on major risk groups.

Further action

The Public Health Unit has surveyed general practitioners in the Region to gauge the level of support for the proposed education program. We have also assisted the Mental Health Unit to develop the education program by conducting a literature review of risk factors for suicide and the efficacy of preventive programs.

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