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Differences in Irish Urban and Rural Suicide Rates, 1976–1994

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The recent rise in the Irish suicide rate is a male phenomenon. The present paper calculates urban and rural suicide rates for Ireland and looks at some possible explanatory variables for the differences observed. Irish suicide and undetermined death rates, age-adjusted to the European Standard Population, are calculated for the years 1976 to 1994 to determine if there are any discernible trends between urban and rural areas. Possible associated factors are then examined, including the distribution of psychiatric illness using the National Psychiatric In-Patient Reporting Scheme. Between 1980 and 1990, the Irish rural male suicide rate rose by 50% while there was no increase in the male urban rate. The most radical increases have occurred in the young and elderly rural males. At the start of the study period, the urban female suicide rate was higher than the rural rate but the two rates have been almost identical since 1985. Some factors associated with suicide were examined but failed to provide sufficient explanation for the difference in rates. Further research is needed to clarify the reasons for these differences and to monitor ongoing trends.

Keywords suicide, rates, rural, urban, undetermined death

Since the rise in Irish suicide rates was clearly identified in 1987 (Daly, & Kelleher, 1987) and confirmed in two subsequent studies (Kelleher, & Daly, 1990; Walsh, Cullen, Cullivan, & O'Donnell,

1990), there has been discussion as to what the reasons might be (Kelleher, 1996). It has been shown that the rise is a male phenomenon and that the greatest rise has occurred among young males

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(Kelleher, Corcoran, & Keohane, 1995) and the young elderly i.e., 65–74 year olds (Kelleher, Corcoran, & Keeley, 1997a). There has been no rise in the female suicide rate. The effects of decriminalising suicide in 1993 have yet to be determined.

According to the 1991 Census, the Republic of Ireland has a population of 3,525,719 citizens. The country is divided into four provinces and 27 administrative counties. There are 54 named urban districts with populations varying from 1,500 to 25,000 as well as five cities with much larger populations ranging from Waterford with 40,000 to Dublin with 478,000. In 1926, 32% of the Irish population lived in towns as opposed to 57% in 1991. Medium-sized towns and suburban development have been the main recipients of these population shifts (Courtney, 1995). This does not take into consideration the number of former urban dwellers who, often following financial success, move to the country but retain their urban background.

It is well known that suicide rates vary both within countries, for example, Canada (National Task Force on Suicide in Canada, 1994), as well as between countries. This is so, even in comparatively small countries such as the Netherlands (Kerkhof, & Kunst, 1994). For many years it has been known that the suicide rate varied between urban districts within the same city, for example, London (Sainsbury & Barraclough, 1968).

Explanations of such variation often focus on demographic differences, namely, that there is a higher concentration of the more vulnerable in one area than another. Age and gender differences are also invoked in such explanations. The present study examines whether there are consistent rural and urban differences in suicide rates within Ireland and, if so, whether they are age and gender specific.

METHOD

The years studied were 1976 to 1994. Before this, the national statistics have been shown to be unreliable (Cantor, Leenaars, & Lester, 1997) and are not available in complete form on computer disk. There were four national population censuses taken during that time, in the years 1979, 1981, 1986 and 1991 (Central Statistics Office). For the purposes of calculating suicide and undetermined death rates, the urban population consists of those resident in the county boroughs (cities) and urban districts. From the census reports, the urban and rural populations were calculated in five-year age bands for each sex. There are historical anomalies, however, which do not take account of population change. Thirteen relatively large towns (population 2,000 to 10,000) are not defined as urban districts and are therefore rated as rural. This is also the case for the population in the satellite towns and suburban areas that have developed around cities. The largest, by far, surrounds Dublin City (approximate population 500,000) and as a consequence, we have categorized all of Dublin County as urban. However, there is advantage in that the classification used is independently determined.

For each urban district, county borough and 'rest of county' area, the number of suicides was tabulated by gender and age, in 5-year age bands, using the nearest previous census population, except for 1976–78 when the 1979 census data were used. Urban and rural suicide rates were calculated for males and females and age-adjusted to the European Standard Population (Waterhouse, Muir, Correa, & Powell, 1976). Because the number of Irish suicides is comparatively small (390 for the year 1994), suicide rates for three broad age groups were examined: 15 to 29 years; 30 to 54 years; and over 55 years. For the same reason 3-year moving averages were used.

In order to investigate whether changes in the classification of unnatural deaths might have differentially influenced the suicide rates, the rates of urban and rural undetermined death were calculated, using the method described above. This is the commonest alternative verdict in cases of probable suicide. Data from the four full national population censuses (1971, 1981, 1986, 1991) were also examined to look at any changes in the distribution of marital status over the period of the study.

National patterns in relevant psychiatric disorders were also investigated. Alcohol and substance misuse in the general population cannot be calculated separately for rural and urban areas; neither can the frequencies of various mental illnesses. The best available statistics come from the National Psychiatric In-Patient Reporting System which looks at the pattern of admissions to Psychiatric Hospitals throughout the country. This system has been operated by various agencies since its inception in the late 1970s with a corresponding variation in coverage. For the purpose of comparison, we examined all first admissions by area of residence for the

year with the most complete data set, 1995, which achieved coverage of 96% of psychiatric in-patients (4,047 males and 3,199 females). The diagnoses we looked at were those we have found most relevant to suicide in previous work, in particular depressive illness and alcohol and substance abuse (Barraclough, Bunch, Nelson, & Sainsbury 1974).

RESULTS

Until 1980, the Irish male urban and rural suicide rates were almost identical (Figure 1). Between 1980 and 1990 the Irish rural male suicide rate rose by 50% while there was no increase in the male urban rate. The resultant difference in rates has been maintained since then with both rates increasing in tandem. At the start of the study period, the urban female suicide rate was higher than the rural rate. By 1985 the female rates were almost identical and have remained closely aligned ever since.

The male suicide rate in the capital, Dublin, has remained steady at 12 per 100,000 throughout the study period while the other cities have experienced an

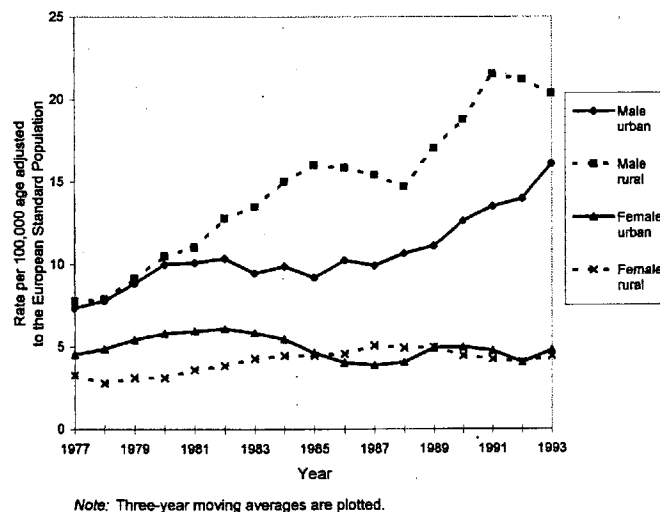


FIGURE 1. Irish male and female urban and rural suicide, 1976-94.

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increase in the order of 50% (on average going from 10 to 15 per 100,000). The number of female city suicide was small and there was no trend evident in the rates, which averaged around 5 per 100,000. There were also differences between the provinces. While all provinces have experienced a rise in male suicide, the rate for Leinster, the province which contains the capital city and whose population is therefore mostly urban, has risen less steeply and has consistently been the lowest since 1983. The rates of the other three, predominately rural, provinces are 33% higher.

The rise in the male rural suicide rate occurred in each of the three broad age groups studied but the rise among urban males was less marked and was confined to the under 30s and over 55s (Figures 2-4). For each of the three age groups, the male rural suicide rate was consistently higher than the urban rate. During the early eighties, there was a steep increase in suicide among elderly countrymen, to the point where the rate was more than double that of their urban counterparts. Following this, the elderly male rates began to converge. Men

in the 30-54 year ago group showed the least marked difference between rates. There had been very little difference between the suicide rates of young urban and rural males until 1987. Since then, however, the rural rate has doubled (from 14 to 27.5 per 100,000) while the urban rate has shown a 40% increase (from 12.5 to 18 per 100,000).

As can be seen from Figure 5, there has been a large reduction in the rate of undetermined death, especially since 1989. However, the rate of decrease is similar for men and women and does not vary between urban and rural areas.

Figure 6 shows the changing distribution of marital status within the country. In 1971, a rural man in the age group 30 to 54 years was over twice as likely to be single as his urban counterpart but this difference has reduced dramatically. The opposite has been happening among the over 55 year-olds with countrymen becoming increasingly more likely to be single than urban men of their age. For the young, marital status is likely to be of far less significance, as the vast majority is single. The proportions of young single

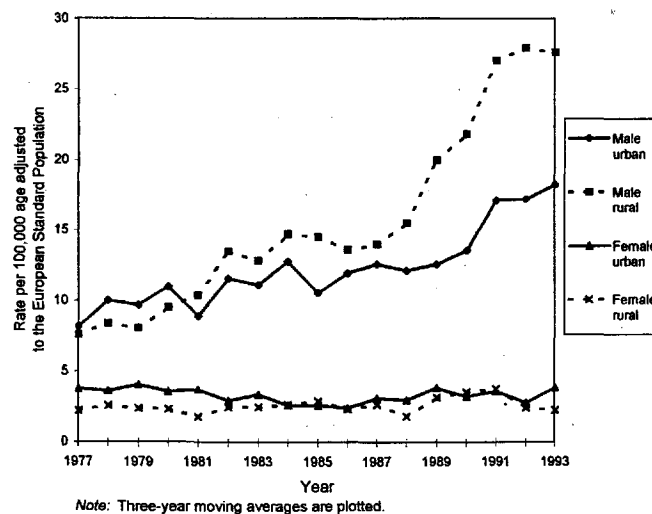


FIGURE 2. Irish 15-29 year-old male and female urban and rural suicide, 1976-94.

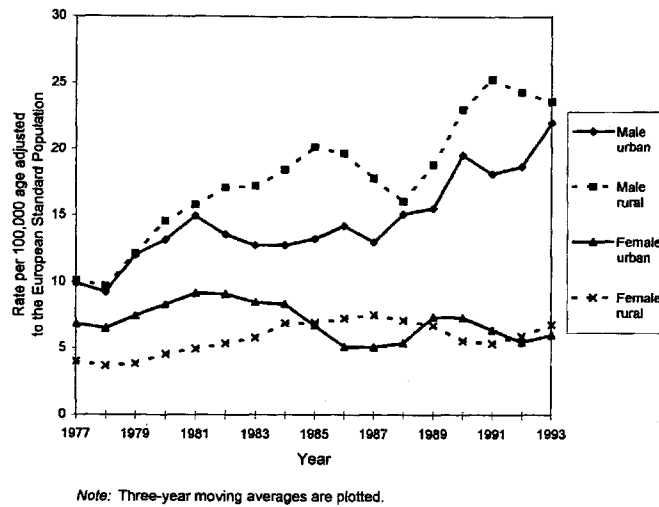


FIGURE 3. Irish 30-54 year-old male and female urban and rural suicide, 1976-94.

men and women are very similar in urban and rural Ireland and they have been throughout the study period. Countrywomen between 30 and 54 years of age are increasingly less likely to be single than urban women. Internal migration is likely to be a causative factor for this and also for the striking reduction in the excess of

single middle-aged men in rural areas over the time period.

The examination of the National Psychiatric In-Patient Reporting Scheme for 1995 revealed that a discharge diagnosis of depressive illness was given to 25% of men and 37% of women, regardless of whether their area of residence was urban or rural.

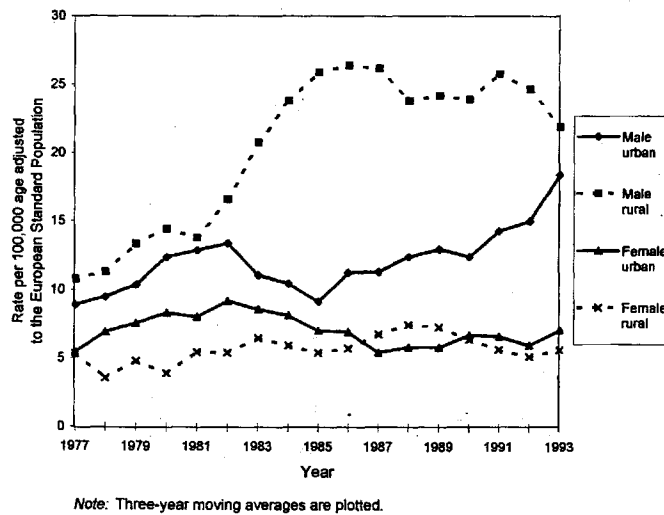


FIGURE 4. Irish over 55 year-old male and female urban and rural suicide, 1976-94.

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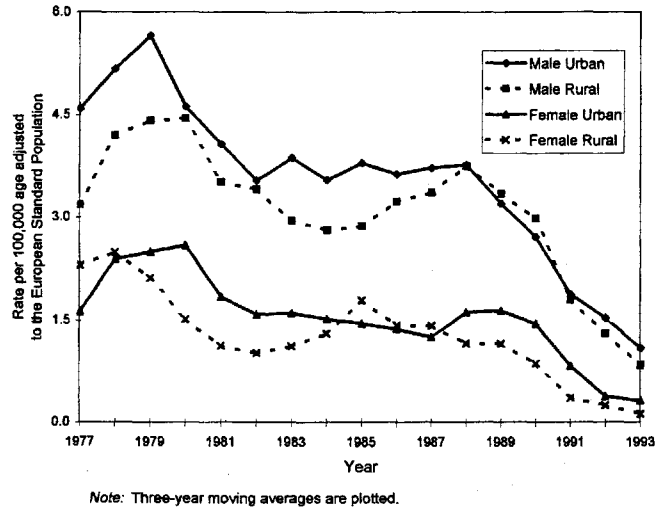


FIGURE 5. Irish male and female urban and rural undetermined death, 1976-94.

The diagnosis of alcohol abuse, either as a primary or secondary diagnosis, was given in 28% of cases for men whether with urban or rural home addresses. Women were marginally more likely to be given this diagnosis if they were from a rural background (13% urban, 16% rural). A discharge diagnosis of substance abuse is still relatively rare, at 6% of all male admissions for 1995, and almost half of those from

urban areas were from the greater Dublin area. It is even rarer for women at 2% and 1.5% for urban and rural females, respectively.

DISCUSSION

Any novel difference warrants at least four questions. Is it real, or more correctly, is it

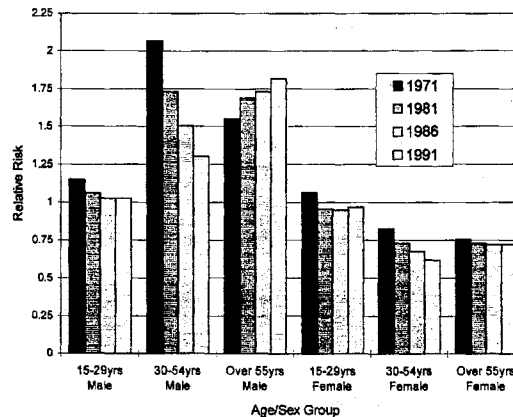


FIGURE 6. Likelihood of being single in rural vs urban Ireland.

an artifact? Is it likely to persist? Does it reflect what may occur elsewhere and, what is its likely clinical significance? These issues will be discussed in order.

At the very least, this work demonstrates a robust difference in rural and urban suicide rates in a small country over a 19-year period, which is not explicable in terms of population distribution. Neither can this variation be accounted for by changes in the practice of the local coroners because there has not been a corresponding level of decrease in the alternative verdict of undetermined deaths to explain the increases. It has been previously shown that, while the overall rate of undetermined deaths in Ireland has dropped substantially, especially since 1989, it could not account for more than 40% of the increase in the suicide rate (Kelleher, Corcoran, Keeley, Dennehy, & O'Donnell, 1996). Also, the final statistical classification is determined centrally, taking account of other information, and this should prevent artificial local differences from affecting national statistics. This is supported by our finding that the undetermined death rate has dropped at an equal rate for men and women of both urban and rural backgrounds.

The rural and urban difference is primarily a male phenomenon affecting particularly the young and the elderly. The rise for the elderly occurred in the first half of the study period, while for those aged less than 30 years, the increase was most marked after 1986. Overall, the suicide rate of the young Irish rural male increased by 400% between 1976 and 1994.

However, these data cannot confirm the persistence of these results, as previous trends are not always a secure basis for predicting future ones. Therefore, it is not known if these rural and urban trends will persist, diverge further or coalesce.

Whether these changes reflect what may be occurring in other countries is easier to explore. It is possible that hidden

within the national statistics of other jurisdictions, such as England and Wales, Scotland or Northern Ireland, such a rural/urban divide occurs. Enquiry into this possibility would have to be made. There is evidence for such a division between rural and urban rates in other countries as disparate as Estonia (Vamik, 1997), Australia (Dudley, Walters, Kelk, & Howard, 1992) and China (Pearson, & Lee, 1997).

The clinical significance of the findings is crucial as prevention, treatment and/or the distribution of services may be affected. The data presented here are not conclusive in explaining the urban and rural differences in suicide rates.

Of the factors examined here the admission data relating to illness patterns and, alcohol and substance abuse failed to suggest reasons for the increase in rural suicide. Indeed it has been found that intravenous drug usage in Ireland is largely a Dublin phenomenon (Hutchinson, Keenan, Cheasty, O'Connor, & McCarthy, 1995) and half of all males with a discharge diagnosis of substance abuse came from the greater Dublin area. Despite this, the Dublin suicide rate has not increased in the past 20 years. However, obvious confounding factors exist, including differences in access and attitude between the two populations. Those living in remote areas may choose hospital admission only as a last resort due to travel/transport difficulties, and, possibly, increased perception of the stigma of mental illness. Indeed, only 12% of psychiatric in-patient admissions for 1995 were from rural areas, while 40% of the general population is comprised of rural inhabitants. There is a possibility that there may be a group of people with psychological illness in rural areas in Ireland who do not get admitted to a hospital, for whatever reason, and that this phenomenon may be associated with higher rural rates of suicide. The impli-

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cations for the provision of services in rural areas with relatively high rates have been addressed in another paper (Kelleher, Keeley, & Corcoran, 1997b).

Previous findings have shown marriage to be protective against suicide for men (Brown, Adler, & Bifulco, 1998). However, at the group level, this factor offers only partial explanation for the differences in male suicide rates observed here. For elderly men, there has been an increasing excess of both suicide and the proportion that is single in rural as compared to urban areas. Throughout the period, both have also been in excess for middle-aged countrymen. However, while the levels of unmarried middle-aged men have converged, the rates of suicide have diverged. This factor can be discounted for the young men, as the increasing excess of rural suicide is not associated with any significant difference or change in the relative proportion that is single.

It is not intended that the factors examined here should be considered the only ones relevant to the topic. Further explanation, including that based on the effect of societal transformation does not

lend itself readily to empirical research and is beyond the scope of the current article. It is likely however, that the loss of a secure and traditional way of life may have a disintegrating influence on rural communities.

The implementation of the final report of the National Task Force on Suicide in Ireland (1998) may provide a stepping stone toward further inquiry into and better understanding of this important problem.

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REFERENCES

- Barraclough, B., Bunch, J., Nelson, B., & Sainsbury, P. (1974). A hundred cases of suicide: Clinical aspects. *British Journal of Psychiatry*, *125*, 355-373.
- Brown, G.W., Adler, Z., & Bifulco, A. (1988). Life events, difficulties and recovery from chronic depression. *British Journal of Psychiatry*, *152*, 487-498.
- Cantor, C.H., Leenaars, A.A., & Lester, D. (1997). Under-reporting of suicide in Ireland, 1960-1989. *Archives of Suicide Research*, *3*(1), 5-12.
- Central Statistics Office. *National Census Reports, 1979, 1981, 1986, 1991: Volume II*. Dublin: Government Stationary Office.
- Courtney, D. (1995). Demographic structure and change in the Republic of Ireland and Northern Ireland. In P. Clancy, S. Drudy, K. Lynch, & L. O'Dowd (Eds.), *Irish society: Sociological perspectives* (pp. 39-89). Dublin: Institute of Public Administration.
- Daly, M., & Kelleher, M.J. (1987). The increase in the suicide rate in Ireland. *Irish Medical Journal*, *80*, 233-234.
- Dudley, M., Walters, B., Kelk, N., & Howard, J. (1992). Youth suicide in New South Wales: Urban/rural trends. *Medical Journal of Australia*, *156*(2), 83-88.
- Hutchinson, L., Keenan, E., Cheasty, M., O'Connor, J.J., & McCarthy, G.A. (1995). Comparison of attendance for drug misuse to Dublin Accident & Emergency Departments, 1985-1993. *Irish Medical Journal*, *88*(2), 56-57.
- Irish National Task Force on Suicide. (1998). *Final Report of Task Force*. Dublin: Government Publications Sales Office.

- Kelleher, M.J. (1996). *Suicide and the Irish*. Cork: Mercier Press.
- Kelleher, M.J., Corcoran, P., Keeley, H.S., Dennehy, J., & O'Donnell, I. (1996). Improving procedures for recording suicide statistics. *Irish Medical Journal*, 89(1), 16-17.
- Kelleher, M.J., Corcoran, P., & Keeley, H.S. (1997a). Elderly suicides in Ireland. *Irish Medical Journal*, 90(2), 72-74.
- Kelleher M.J., Corcoran P., & Keohane, B. (1995). Suicide, road traffic and cancer deaths amongst the young in Ireland. *Irish Medical Journal*, 88(3), 96-98.
- Kelleher, M.J., Keeley, H.S., & Corcoran, P. (1997b). The service implications of regional differences in suicide rates in the Republic of Ireland. *Irish Medical Journal*, 90(7), 262-264.
- Kelleher, M.J., & Daly, M. (1990). Suicide in Cork and Ireland. *British Journal of Psychiatry*, 157, 533-538.
- Kerkhof, A.J.F.M., & Kunst, A. (1994). A European perspective on suicidal behaviour. In R. Jenkins et al., (Eds.), *The prevention of suicide* (pp. 22-23). London: HMSO.
- National Task Force on Suicide in Canada. (1994). *Suicide in Canada: Update of the Report of the Task Force on Suicide in Canada*. Ottawa: Minister of National Health and Welfare.
- Pearson, V., & Lee, S. (1997). Suicide in China. *British Journal of Psychiatry*, 170, 387.
- Sainsbury, P., & Barraclough, B. (1968). Differences between suicide rates. *Nature*, 220, 1252.
- Varnik, A. *Enesetapud Eestis* (Suicide in Estonia) 1965-1995. (1997). Tallin: Estonian Health Foundation.
- Walsh, D., Cullen, A., Cullivan, R., & O'Donnell, B. (1990). Do statistics lie? Suicide in Kildare and in Ireland. *Psychological Medicine*, 20, 867-871.
- Waterhouse, J., Muir, C., Correa, P., & Powell, J. (Eds.). (1976). *Cancer Incidence in Five Continents, Volume III* (IARC Scientific Publications No. 15). International Agency for Research on Cancer: Lyon.