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# Suicide and Self-Poisoning in Three Countries—A Study from Ireland, England and Wales, and Denmark

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Because it has been suggested that both the frequency of deliberate self-poisoning and the characteristics of those who self-poison differ between Ireland, and England and Wales on the one hand and Denmark on the other we have examined self-poisoning rates and suicide rates in these three countries. Higher self-poisoning rates were found for England and Wales than for the other two countries below age 35. After this age self-poisoning rates decline in both England and Ireland but female rates continue to rise in Denmark up to age 45. Danish suicide rates are conspicuously higher than those of both England and Wales, and Ireland. Because combined death rates for suicide, undetermined and accidental deaths diminish but do not remove the differences between countries it is suggested that the Danish suicide death rate reflects a genuinely higher rate of suicide in that country.

At a meeting on attempted suicide convened by the Commission of European Communities in Dublin in 1977 some interesting differences emerged in reported suicide rates and self-poisoning rates as revealed by admission to general hospitals for self-poisoning. These differences concern, particularly, Ireland, England and Wales, and Denmark. Earlier reports have examined suicide and self-poisoning trends in Great Britain and Ireland only.[1]

## METHOD

This brief paper summarizes these differences by using official mortality data to construct suicide rates and general hospital discharge data for self-poisoning to obtain self-poisoning rates for the adverse effects of medicinal agents, ICD Codes N960–979, in the belief that in people aged 15 and over virtually all self-poisonings represent deliberate rather than accidental happenings. The limitations of official suicide rates and of data on self-poisonings that are admitted to hospital only are freely acknowledged and will be dealt with in the discussion.

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## RESULTS

### *Suicide*

Table 1 presents mean suicide rates for the three countries for two consecutive years, 1977 and 1978, which were taken as being representative of the current situation in each country. It is to be noted that the numbers of suicide on which the Irish rates are based are small and therefore the possibility of random fluctuation from year to year exists. That this is so is shown by the actual numbers for 1975, 1976, 1977 and 1978 which were respectively 151, 148, 183 and 163.

As was to be expected two general impressions concerning suicide are broadly confirmed. In all three countries male rates exceed female. There is a tendency for rates to decline in age groups over 65 for both sexes in Ireland and Denmark. A distinct national hierarchy of rates emerges with the Danes having the highest rates

TABLE 1 *Ireland, England and Wales and Denmark 1977 and 1978. Suicide by age and sex. Mean rates/100000.*

| | Ireland | | England & Wales | | Denmark | |
|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female |
| 15–24 | 6 | 3 | 7 | 4 | 12 | 6 |
| 25–34 | 12 | 5 | 12 | 5 | 29 | 16 |
| 35–44 | 8 | 6 | 13 | 8 | 43 | 22 |
| 45–64 | 11 | 7 | 15 | 11 | 53 | 35 |
| 65+ | 6 | 3 | 19 | 12 | 51 | 31 |
| Total 15+ | 9 | 5 | 13 | 8 | 38 | 24 |

at all ages and for both sexes, followed by England and Wales, and then Ireland. There is a tendency for Irish rates to be close to those of England and Wales in younger age groups, ie up to 34 years, but thereafter English rates exceed those of Ireland. Danish rates for all ages are approximately five times those for Ireland and three times greater than those for England and Wales.

*Self-poisoning*

Table 2 presents data on discharge from general hospitals from adverse effects of medicinal agents by sex and age for 1977 and 1978 together. The table shows clearly that the rates for England and Wales are substantially higher than those for the other two countries up to age 44. From then on Danish rates are higher than those of England and Wales. This is because in both England and Wales and Ireland deliberate self-poisoning tends to decline steeply after age 34 whereas in Denmark this descent is less sharp. Female self-poisoning rates, as expected, exceed male rates at all ages and to approximately the same extent in each country. Rates generally decline with age but it is noticeable that whereas they peak in the youngest age group, ie 15–24 in Ireland and England and Wales, highest rates occur later, between 25 and 34 in men and 35 and 44 in women in Denmark.

## DISCUSSION

The principal findings in relation to suicide from the above data is the consistently higher rate in Denmark compared to the other two countries. The question immediately arises whether these reported rates in the three countries reflect the true position and, if not, whether discrepancies between reported and 'true' suicide rates are similar between the three countries. England and Wales, and Ireland share a common method of ascertainment of causes of death in cases likely to be suicide—the coroner system. The coroner is an officer of the law who, before he returns a verdict of suicide or issues a death certificate implying suicide, must be satisfied that certain stringent legal criteria are fulfilled. These are, broadly, that the action which led to the deceased's death was self-initiated and that the dead person intended that the act should have fatal consequences. Thus, he must be satisfied, from the evidence placed before him, that certain legal desiderata are fulfilled 'beyond all reasonable doubt'. In the absence of these he is not, in law, justified in returning or implying a suicidal death. Moreover clerical workers in the Registrar General's statistical offices of the two countries may utilize further criteria before they code a death as suicide from death certificates.

In Denmark, on the other hand, the procedure of death ascertainment is totally different. It is carried out in private by a public officer called the Kredslaege and the proceedings are not available to public scrutiny. In addition it is probably true that public attitudes to suicide in Denmark are less censorious than in the other two countries.

It, therefore, remains unclear whether the reported suicide differences between the three countries are real or artefactual but it can be assumed that differences between England and Wales, and Ireland are less likely to be artefactual than between these two countries and Denmark.

If some suicidal deaths in England and Wales, and Ireland are not being returned as such in official statistics how then do they appear? Assuming that they are not certified as from natural causes there are two main possibilities. Either they are returned as deaths 'undetermined whether accidentally or purposely inflicted' or as accidental deaths from causes of death that, by their nature, have a strong possibility of being suicide. There are grounds for believing that a high proportion of 'undetermined' deaths are likely to be suicide in both countries.[2] Barraclough[3] enumerated the 'accidental' causes of death that might possibly be suicide and this study has followed his example.

The general hypothesis underlying this approach is that in Denmark because of the nature of the ascertainment procedure there will be much less misclassification of actual suicides in the undetermined and accidental categories. On the other hand, under the coroner system of England and Wales and Ireland we may expect to find a much greater number of actual suicide deaths being returned as either undetermined or accidental.

To test this hypothesis the combined death rates from accidental, undetermined and suicide deaths for 1977 and 1978 combined have been set out in Table 3.

It is now apparent that the differences between

TABLE 2 *Ireland, England and Wales and Denmark 1977 and 1978. Adverse effects of medicinal agents. Discharge rates from hospital. Code N960–979. Mean rates/100000.*

| | Ireland | | England & Wales | | Denmark | |
|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female |
| 15–24 | 96 | 172 | 268 | 592 | 96 | 174 |
| 25–34 | 94 | 143 | 267 | 407 | 173 | 225 |
| 35–44 | 64 | 104 | 204 | 338 | 152 | 248 |
| 45–64 | 31 | 60 | 95 | 154 | 105 | 184 |
| 65+ | 33 | 50 | 55 | 94 | 93 | 142 |
| Total 15+ | 65 | 109 | 174 | 287 | 123 | 191 |

TABLE 3 *Ireland, England and Wales, and Denmark 1977 and 1978. Suicide, undetermined and accidental deaths. Mean rates/100 000.*

| | Ireland | | England & Wales | | Denmark | |
|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female |
| 15–24 | 13 | 4 | 13 | 7 | 19 | 8 |
| 25–34 | 24 | 7 | 20 | 9 | 40 | 20 |
| 35–44 | 21 | 8 | 20 | 14 | 54 | 27 |
| 45–64 | 23 | 14 | 24 | 17 | 62 | 40 |
| 65+ | 22 | 10 | 28 | 19 | 59 | 35 |
| Total 15+ | 20 | 10 | 22 | 13 | 48 | 28 |

Ireland, and England and Wales have largely disappeared but Denmark still shows rates that are approximately 2–2½ times greater than the other two countries.

Thus the Danish ascertainment method is not of itself responsible for higher Danish rates and this is in keeping with Ross and Kreitman's finding that despite the non-coroner, non-public ascertainment procedure in Scotland rates, as determined from case records, are still lower than in England and Wales.[4] It is also noticeable that there are proportionately more deaths in Ireland returned as accidental deaths from causes of death that could possibly be suicide, than is the case in England and Wales, and Denmark. This has the effect of almost equalizing the combined rates for these three causes of death between Ireland, and England and Wales. Some suicide deaths are undoubtedly masquerading as accidental deaths in Ireland. Earlier studies[5] and Barraclough,[6] using data from 1968–1970, found Irish rates to be at least twice as high as those of England and Wales. Our data for 1977 and 1978 show that the difference in official suicide rates between the two countries has narrowed and this appears to be because Irish coroners are now more likely to return suicide verdicts than formerly.[7]

Turning to the observed differences in deliberate self-poisoning or 'attempted suicide' ie greater rates for England and Wales than the other two countries up to age 35, somewhat similar rates for England and Wales, and Denmark from age 35 onwards and a lesser tendency for rates to decline with age in Denmark than in England and Wales, and Ireland, artefacts are also possible because of differing hospital admission policies between countries. On this matter we have no evidence one way or the other and therefore the data we present and their interpretation must be treated with great caution.

We can conclude that in relation to suicide and self-poisoning behaviour the Irish, and English and Welsh differ less from each other than they do from the Danes. The evidence suggests at least twice as high a 'real' rate of suicide among Danes compared to the Irish, and English and Welsh. The explanation for this difference must lie in social and cultural differences which it is not our purpose to explore in this brief paper. The self-poisoning data suggest the possibility that as a phenomenon self-poisoning may be decreasing in Denmark with those suicide attempts that still occur being more serious in nature. That this is the case is supported by the lower ratio of hospitalized self-poisoning to suicide by poisoning in 1977 and 1978 in Denmark compared to the other two countries. The higher age of Danish self-poisoners may indicate a qualitative as well as a quantitative difference. Either way the Danish situation merits further investigation which we hope to undertake.

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