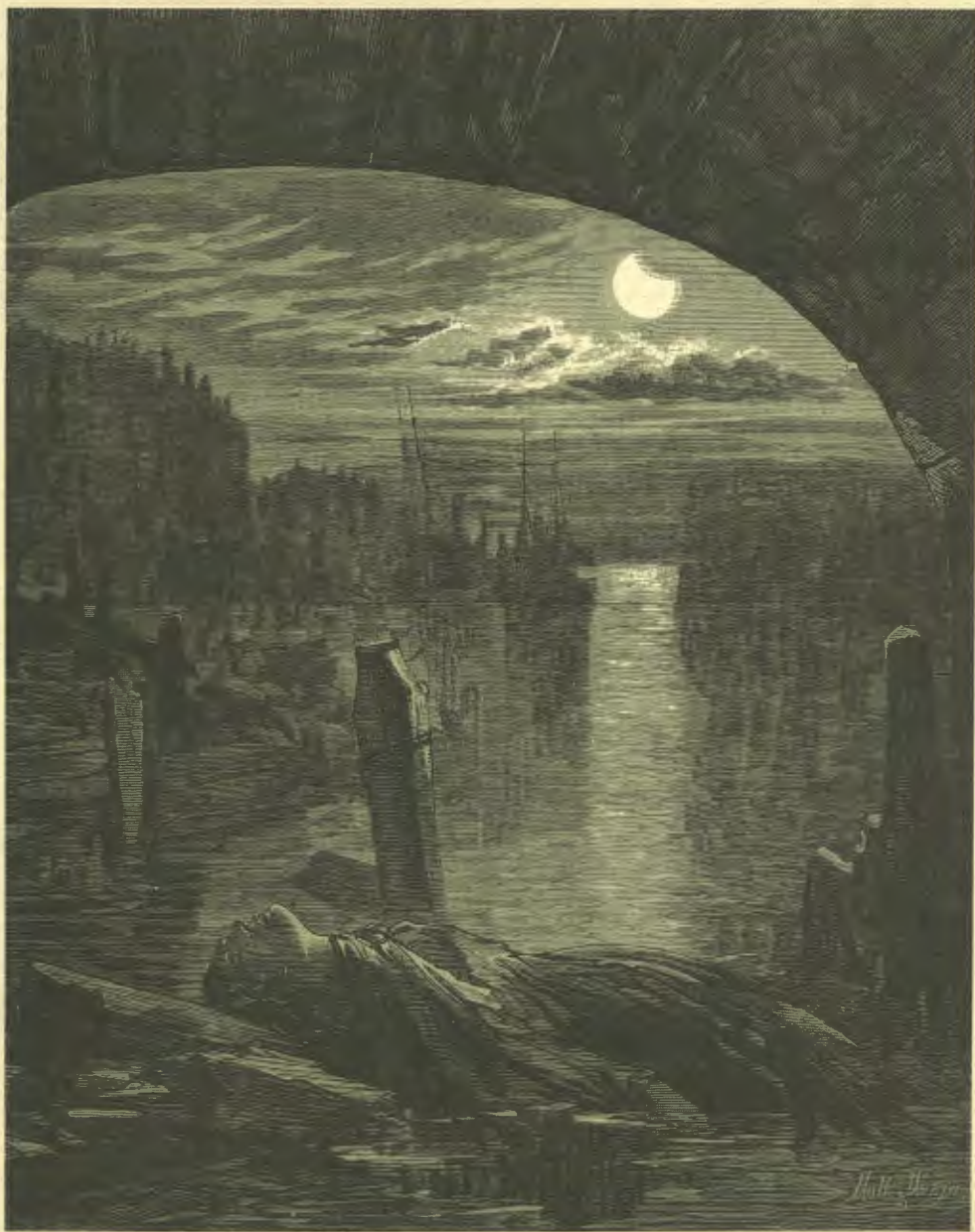


SUICIDE AND DELIBERATE SELF-HARM



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Office of Health Economics

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Office of Health Economics

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Introduction

Official mortality statistics show that each year in England and Wales approximately 4,000 people take their own lives.¹ By universal assent this figure understates the true incidence of suicide although to what extent remains unclear. Hospitals provide care for nearly 2,000 cases of deliberate non-fatal self-poisoning every week. In addition an unknown percentage of the remaining 321,500 (1977 data) annual hospital admissions among those aged 15 years and over for other injuries and reactions involves some element of self-damaging intent as does an even more elusive proportion of the poisoning and wounds seen only by general practitioners or not brought to medical attention at all. Until very recently the number of completed suicides has tended to stabilise or even fall whilst the annual incidence of non-fatal deliberate self-harm has increased at an alarming rate.

The division of intentionally self-harmful behaviour into two discrete groups according to outcome as implied by the above statistics is, however, a potentially misleading representation of what many commentators consider to be one of the most serious of contemporary medical/social problems. Nevertheless, appreciation of the complexities involved is now substantially greater than 25 years ago. In the mid-1950s little distinction was drawn between suicide and 'attempted suicide': the latter was simply regarded as a bungled undertaking of the former. A more perceptive interpretation emerged in 1958 with the publication of Stengel and Cook's classic paper entitled *Attempted Suicide*. They identified important epidemiological differences between 'attempted suicide' and completed suicide and drew attention to the critical distinction between the two groups, namely that 'the person who has attempted suicide lives on as a rule and the attempt becomes a significant event in his life and calls forth actions from the human environment'.

Subsequently Kessel (1965), concerned with the emphasis on self-destruction in Stengel's approach, pointed out that in the majority of instances of so-called attempted suicide patients 'performed their acts in the belief that they were comparatively safe – aware, even in the heat of the moment, that they would survive their overdosage and be able to disclose what they had done in good time to ensure their rescue'. Consequently he proposed that the terms 'deliberate self-poisoning' and 'deliberate self-injury' should be substituted as more appropriate descriptions of the behaviour in question. Both terms distinguish actions which are clearly not the result of an accident but at the same time avoid any suggestion

¹ This is equivalent to slightly less than 20 per cent of all unnatural fatalities and just 0.7 per cent of annual mortality from all causes. Among those aged 25–29 years, however, the latter proportion rises to 12.3 per cent.

that death is the desired outcome. With these advantages they became widely accepted by the end of the 1960s. In this paper non-fatal deliberate self-harm (DSH)² will be employed to encompass both self-inflicted injury and poisoning, although, as it will become clear, the latter is the 'preferred' means in most cases coming to medical attention.

The last two decades have witnessed dramatic and divergent trends in the incidence of suicide and DSH. This paper examines these developments with a view to identifying the most plausible explanations for their occurrence. Superficially it would appear that there are legitimate grounds for regarding the two types of behaviour as quite distinct phenomena. But the paper then draws on more recently derived evidence to show that from epidemiological, psychiatric, motivational and other viewpoints there are many different subgroups which, together, constitute a wide spectrum of suicidal/DSH behaviour. Against this background the final main section evaluates the success of various strategies designed to reduce the number of individuals who deliberately harm or kill themselves each year.

Trends in suicide

Information concerning the numbers and some of the epidemiological characteristics of the suicides which occur each year in England and Wales is readily available from the Registrar General's mortality records. However, for a number of reasons these data must be treated with circumspection. In the first instance death has to be recognised as having been caused unnaturally and this may not always be straightforward: although hanging or drowning, for example, clearly cannot be mistaken for natural occurrences, some poisoning fatalities, may quite easily masquerade as such events and thus go undetected. The latter may be particularly likely to arise in cases involving elderly or infirm individuals where death is not wholly unexpected and there is little reason for suspicion of abnormal circumstances (Patel 1974).

² Following Morgan (1975) DSH may be defined as 'a deliberate non-fatal act, whether physical, drug overdose or poisoning, done in the knowledge that it was potentially harmful, and in the case of drug overdose, that the amount taken was excessive'. Nevertheless in view of the fact that there are similarities between DSH and completed suicide regarding social and other characteristics and because there exists a degree of overlap in that some people who kill themselves do so accidentally, whilst a proportion who survive had probably intended to die but misjudged the situation, the term 'parasuicide' – 'referring to a behavioural analogue of suicide but without considering a psychological orientation towards death being in any way essential to the definition' (Kreitman *et al* 1969) – may be used synonymously with DSH.

Once death has been recognised as unnatural the perpetrator of the fatality must be identified as the victim himself and it has also to be established that demise was the consequence of an intentional act. The difficulties in demonstrating that both criteria are fulfilled vary once again with the nature of the injury (Farmer and Rohde 1980).

In England and Wales the responsibility for determining the status of unnatural deaths lies with coroners who, in order to record a verdict of suicide, have to be satisfied that the evidence proves that the person concerned intended to take his or her own life. (By contrast in Sweden and Denmark suicide may be presumed if there is no evidence to the contrary.) In this country the law was restated in the Court of Appeal in 1975 (Farmer 1980): 'If a person dies a violent death, the possibility of suicide may be there for all to see but it must not be presumed merely because it seems on the face of it to be the likely explanation. Suicide must be proved by evidence' (Widgery 1975). If there is doubt about the intentions of the deceased either an accidental or open verdict death should be recorded.

In view of these legal constraints it is widely held that official suicide statistics (that is ICD nos E950-E959) understate the true extent of the problem.³ Consequently a number of authors (for example, Adelstein and Mardon 1975) suggest that for analytical purposes the official suicide category be combined with that of undetermined (UD) deaths - ICD nos E980-E989 'injury undetermined whether accidentally or purposefully inflicted' - and accidental poisoning fatalities (ICD E850-E877) on the grounds that these are the two groupings most likely to contain concealed suicides.

Following this procedure for England and Wales (for individuals aged 15 years and over) and employing 1977 data raises the official number of suicides from 3,944 to an estimated total of 6,136. On this basis officially recorded suicides therefore represent 64 per cent of the true level.⁴ Restricting the postulated shortfall to include just accidental and undetermined poisoning deaths raises

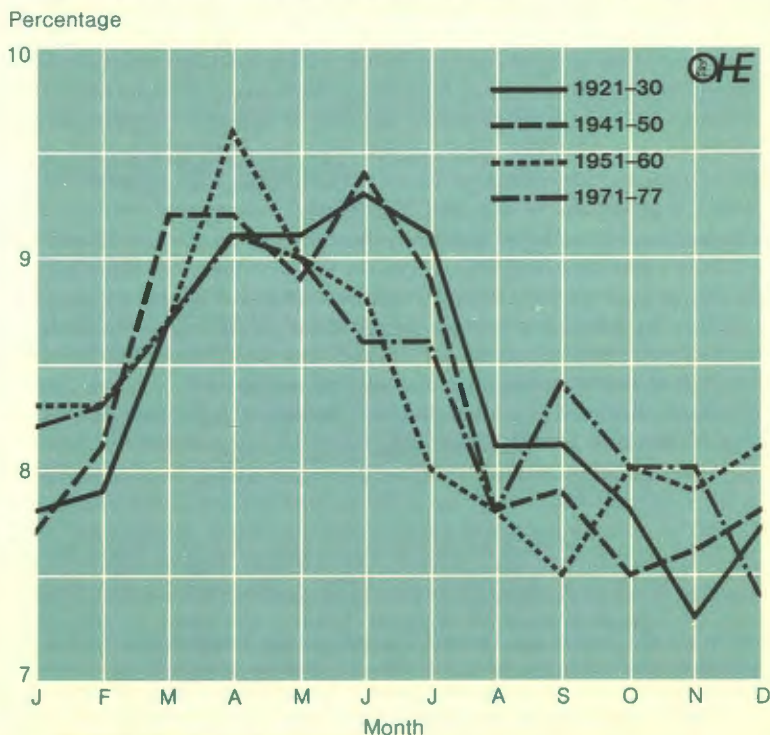
3 Indeed criticism of official suicide statistics has often gone much further than this. For example some commentators have argued that inconsistencies must inevitably exist in the verdicts reached by different coroners and that this severely inhibits the value of recorded suicide figures. However, this contention was not upheld in a study by Sainsbury and Barraclough (1968) which failed to identify postulated deviations in local suicide rates following changes of coroner. Moreover, Barraclough (1980) has pointed out that no other form of death, except murder, has such an exacting and far reaching enquiry before the death certificate is signed: 90 per cent of suicides undergo a post mortem compared to just 23 per cent from other causes.

4 This estimate is of a similar order of magnitude to the figure of 59 per cent found in Edinburgh in 1970 by employing a definition of suicide wider than the customary legal one and sources of information in addition to official Crown Office data (Kreitman 1977).

this proportion to 72 per cent. Figure 1 illustrates the differential between official and 'estimated' suicides for both sexes by age group. The effect of including accidental poisoning and all undetermined fatalities in raising the total 'estimated' suicide rate is slightly more pronounced among the younger age groups (discounting those aged 85 years and over because of the small numbers involved) and is consistently greater for females.

A number of questions have, however, been raised concerning the validity of the 'combination approach' outlined above. Barracrough and White (1978a, 1978b), employing a statistical technique to investigate temporal incidence patterns, demonstrated that 'undetermined' deaths as a whole did not follow the characteristic pattern of seasonal variation shown by suicides (illustrated in Figure 2)⁵ and, more specifically, that this was also the case for

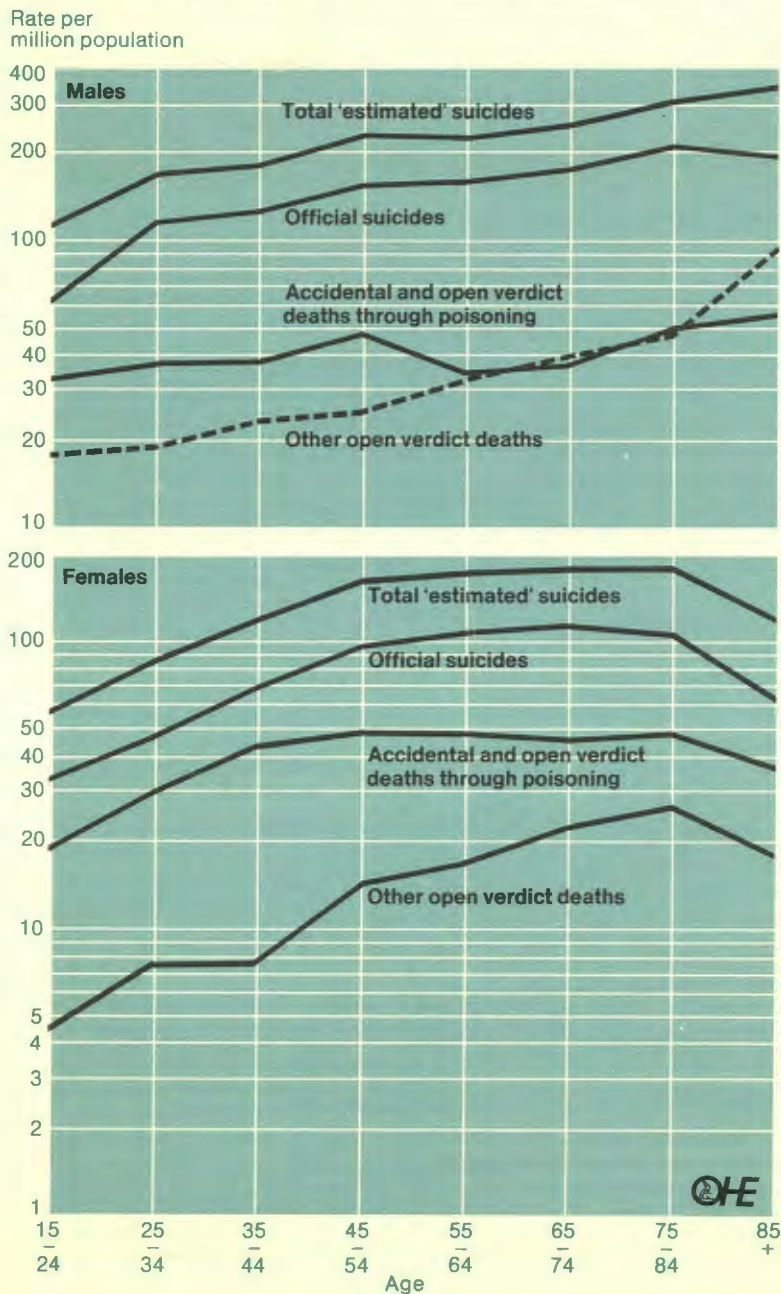
Figure 2 *Percentage distribution of suicides by standard months of 30 days, England and Wales, 1921-30, 1941-50, 1951-60 and 1971-77*



Source Registrar General.

⁵ It was once commonly supposed that there was a raised incidence of suicide during the winter months of the year. However, data for the 1970s indicates that the smallest proportion of annual suicides occurs in December and that the distribution peak is in fact achieved in early spring. Why this season should be so hazardous remains unclear.

Figure 1 Official and 'estimated' suicides by age group, England and Wales, average for 1976 and 1977. Death rates per million population



Source Registrar General.

undetermined and accidental poisoning fatalities. The latter was an unexpected finding as other evidence had suggested that a large proportion of adult poisoning deaths were probably suicides.⁶ And Holding and Barraclough (1978) in a comparison of a consecutive series of 110 undetermined deaths with matched samples of suicides and accidents were unable in terms of a variety of social, demographic, clinical and other variables to confirm the hypothesis that UDs are mostly concealed suicides. Such findings may not be readily reconciled with the impressions gained by some workers familiar with individual case histories. Indirectly they also draw attention to the potential conflict between retrospective research to establish the likelihood of suicide and the legal considerations and obligations incumbent upon coroners in reaching a verdict of this nature.

There is little doubt that the true incidence of suicide is greater than that reflected in official statistics, although not, as this section has shown, by a factor of times two or three as has sometimes been suggested. However, because of the difficulties in isolating likely suicides from unnatural deaths recorded elsewhere and the fact that the 'undetermined' category was only introduced in 1968⁷ thereby inhibiting long-term analysis, the rest of this paper will restrict its attention to the official suicide groupings of the ICD.

General trends

Over the course of the present century the number of suicides has risen from 3,121 in 1901 to 4,022 in 1978. Employing 3 year averages (that is figures spanning 1901-03 and 1976-78) to reduce the effect of year-on-year fluctuations generates an increase of 19 per cent over this period. But statistics presented in this way are potentially misleading.

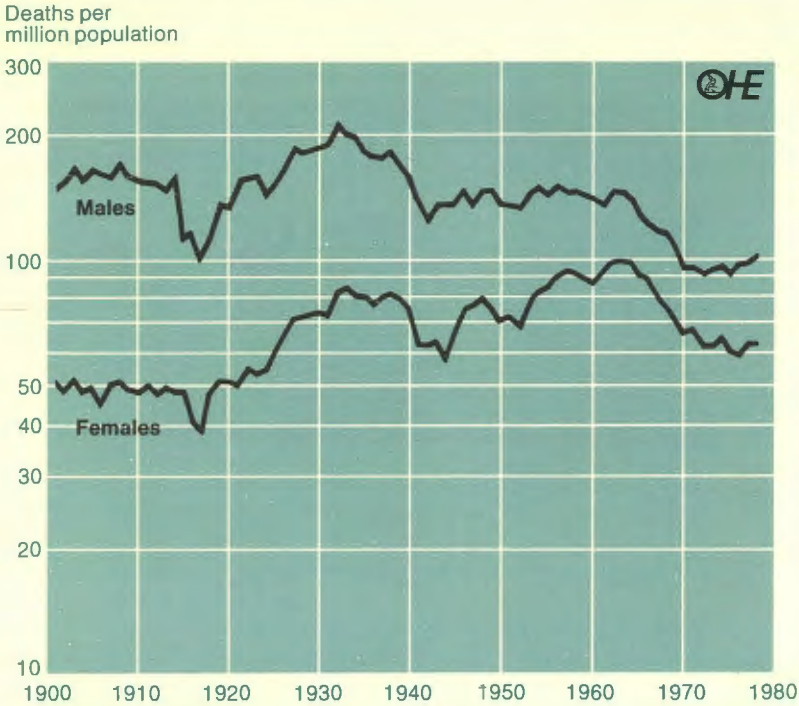
Figure 3 plots crude mortality rates per million population. The principal patterns of change show a basic long-term tendency for male rates to decline whilst the opposite is true for females. Consequently, the rates for the two sexes have converged so that in 1978 the male rate was 1.6 times that for females compared to a multiple of 3.1 in 1901.

Figure 4 shows age/sex specific suicide rates over the present century. In spite of the fluctuations two distinct patterns may be discerned. First, there has been a tendency over the long-term for suicide rates among the younger age groups to remain reasonably

6 Barraclough (1974) for example had earlier shown that the drugs and chemicals which cause death by poisoning are broadly similar for suicide, undetermined and accidental death: Barbiturates were responsible for two-thirds of the fatalities in each class, antidepressants 5 per cent and phenothiazines 2 per cent. Furthermore the recording of an accidental poisoning death in cases where a lethal dose or mixture of drugs had been consumed at least seems intuitively highly incongruous.

7 In previous years 'open verdicts' had been included either with accidents or suicides and were only treated separately in the 1930s (Jennings and Barraclough 1980).

Figure 3 *Suicides: Crude death rates per million living, by sex, 1901 to 1978, England and Wales*



Source Registrar General.

steady – albeit a pattern for females brought about by a generally increasing incidence in the post Second World War period compensating for an opposite trend before the outbreak of hostilities. Second, the degree of temporal fluctuation in rates broadly shows a positive relationship with age but since the late 1950s it has been the older groups, both males and females, who have experienced the most consistent improvement in suicide incidence. This latter point is demonstrated clearly by the cross-sectional data illustrated in Figure 5. The net effect has been to redistribute the suicide population more equally throughout the age spectrum; for example, 47 per cent of male suicides now occur after the age of 50 compared to 65 per cent 20 years earlier.

Returning to more highly aggregated data, a number of specific periods of change can be discerned from the graphs. Suicides among both sexes decreased significantly during the two World Wars. Indeed for females, the lowest rate experienced so far this century was recorded in 1915 and the male rate of the same year was not improved upon until as recently as 1970. The 'favourable' influence of war upon suicide incidence may in part be attributable to a greater degree of social integration at such times, mani-

Figure 4 Suicide rates per million by selected age groups, 1901-78, England and Wales, (Five-year averages 1901-05 to 1971-75. Three-year average 1976-78)

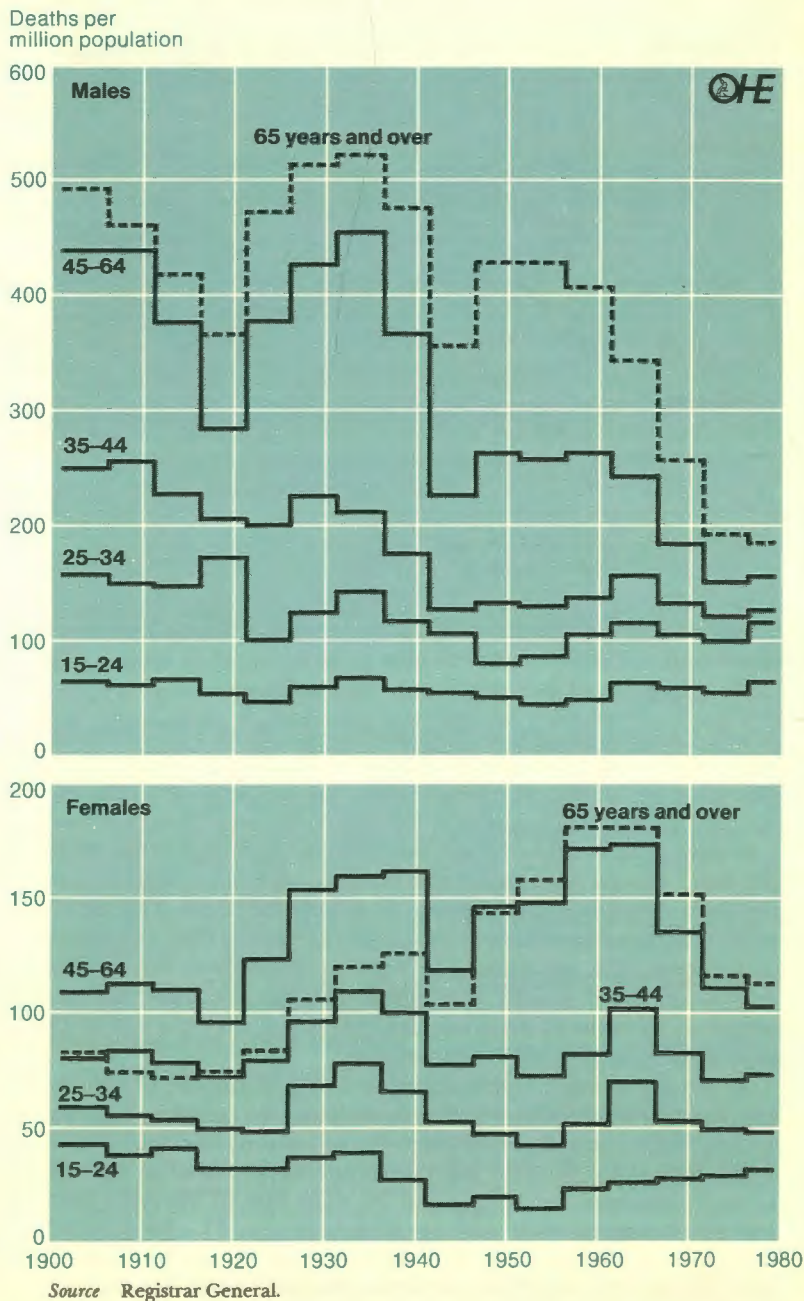
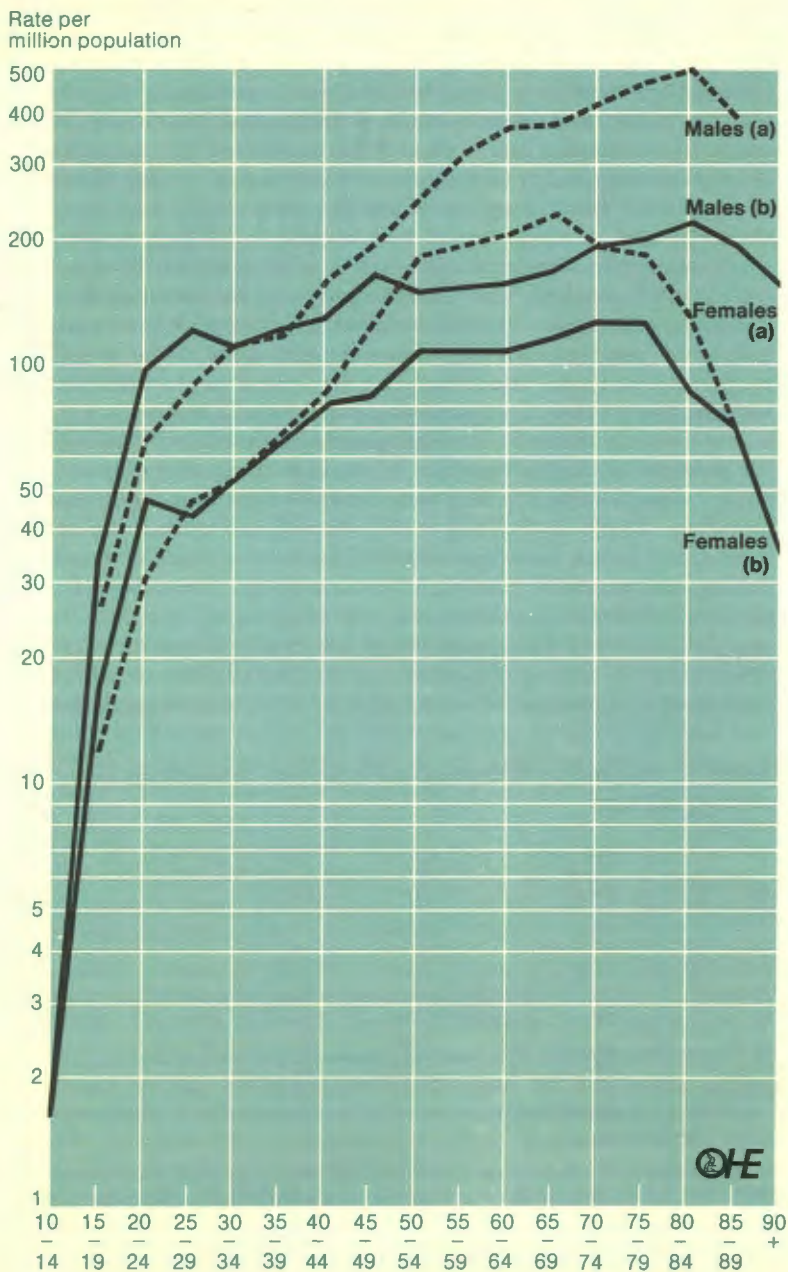


Figure 5 *Suicide rates per million population, by age and sex, England and Wales, averages for (a) 1956 and 1958; (b) 1976-78*



Source Registrar General.

fest, for example, in the attainment of very high levels of employment. However, suicide statistics covering periods of hostilities may to some extent be misleading. For example, Farmer and Rohde (1980a) have pointed out that substantial and sudden changes in the size of the civilian community would have enhanced the pre-existing problems involved in estimating the size and age structure of the population. Furthermore, increased pressures on the medical services may have reduced the emphasis given under normal circumstances to ascertaining precise causes of death and thus a number of suicides may simply have been undetected.

For males the suicide rate reached a peak in 1932 when 4,045 men killed themselves. The following year 1,761 females took their own lives, giving rise to a suicide mortality rate which previously had been unsurpassed and was to remain so until the period 1955-67 when it was consistently higher. These peaks coincided with the worst years of the economic depression in Britain; in 1932 unemployment affected 2.8 million people or almost 22 per cent of the insured workforce. However, it would be misleading to postulate a causal relationship between unemployment and the suicide rate: for example, it would to some extent fail to explain the upward trend in the latter for males of and above retirement age during the recession years. In this context the theories of the pioneer sociologist Durkheim may therefore be of relevance. In 1897 he published a major study in which acts of suicide were subdivided into three principal categories. One of these employed the concept of anomie or normlessness.⁸ Durkheim argued that

Table 1 *Suicide rates in England and Wales per 100,000 by age and sex, 1963 and 1970*

Age (Years)	Men			Women		
	Rate		%	Rate		%
	1963	1970		1963	1970	
15-24	6.9	6	-13	3.1	2.6	-16
25-44	14	10	-29	9.6	5.9	-39
45-64	26	16	-38	17	12	-29
65-74	34	21	-38	20	15	-25
75+	39	24	-38	18	9.7	-46
All ages	14	9.5	-32	9.9	6.6	-33

Source Barraclough 1974.

⁸ The other two classifications were derived from opposing observations. Durkheim showed that suicide rates varied inversely in relation to the degree of integration of an individual into social groups. Thus the individual who has a high degree of concern for himself and puts his own good above that of society as a whole is likely to show a raised predisposition to 'egoistic' suicide. In contrast, there is the 'altruistic' type of suicide, exemplified by the action of Oates during Scott's second Antarctic expedition.

financial or industrial adversity raised the suicide rate, not necessarily as a consequence of the resulting poverty, because 'crises' of prosperity had the same effect, but simply because they were crises, that is events undermining normative structures.

Following the general reduction in suicides during the Second World War, the male rate stabilised until the early 1960s whilst that for females demonstrated an upward tendency. Then between 1963 and 1970 both male and female suicide rates showed a consistent annual decline which amounted to a third over the period as a whole. Table 1 indicates that all age groups with the exception of those aged 15–24 years shared in reductions of approximately this order of magnitude. During the first half of the 1970s both sexes experienced further although somewhat more erratic improvements. Since 1975, however, available data suggest that a general pattern of rising suicide rates is once more becoming established.

Explanations for the decline in the 1960s

The uninterrupted fall in the crude suicide rate from 121 to 80 deaths per million in England and Wales between 1963 and 1970 has attracted a considerable amount of attention for two principal reasons. First, it was of substantial magnitude: taking 1963 as the reference year it may be calculated that the declining rate generated a saving of 6,700 lives over the period as a whole.⁹ Second, it was unique to England and Wales. Sainsbury and his colleagues (1980), in a large-scale study conducted for the World Health Organisation, compared the mean suicide rates of 18 European countries for the period 1961–63 to 1972–74. In fifteen of these the overall rates had increased, the three exceptions being Scotland where it fell by 3 per cent, Greece by 21 per cent and England and Wales where the fall was 34 per cent. In some of the other countries the increase in the suicide rate was of the same order as, or even greater than, the decline in England and Wales – Denmark, Hungary, Ireland, The Netherlands and Poland all had rises of more than 30 per cent.

(Table 2 indicates that in spite of recent increases England and Wales still has one of the lowest suicide rates in the developed world. However, the high degree of international variation is to some extent a function of different rules and procedures for ascertaining suicide deaths. In particular there are important differences in the professional status of those charged with the responsibility for determining unnatural fatalities, the aids available for reaching a verdict, the methods of arriving at a decision on suicide and the possibilities for reversing the latter (Brooke 1974).)

⁹ Further analysis indicates that slightly more than one-third of this saving involved persons over the age of 60 years. Employing age groups spanning 10 years, the largest benefit accrued to those aged between 50 and 59 years – 28 per cent of the 6,700 avoided suicides occurred here.

Table 2 *International suicide rates per 100,000 population*

Country	Year	All	Male	Female
Hungary	1977	40.3	56.0	25.5
Germany (GDR)	1974	36.2	46.0	27.7
Finland	1975	25.0	40.6	10.4
Denmark	1977	24.3	30.9	17.8
Austria	1977	24.3	34.8	14.9
Switzerland	1977	23.9	34.0	14.3
Germany (FRG)	1977	22.7	30.2	15.8
Czechoslovakia	1975	21.9	32.5	11.8
Sweden	1977	19.7	28.3	11.2
Japan	1977	17.9	22.0	13.8
Belgium	1976	16.6	22.1	11.4
France	1976	15.8	22.9	9.0
Bulgaria	1977	14.4	20.7	8.1
USA	1976	12.5	18.7	6.7
Canada	1975	12.4	17.9	6.8
Poland	1976	12.1	20.6	4.0
Norway	1977	11.4	16.9	5.9
Australia	1977	11.1	16.0	6.2
Iceland	1977	10.4	17.0	3.6
New Zealand	1976	9.3	12.6	5.9
Netherlands	1977	9.2	11.5	6.9
England and Wales	1978	8.2	10.2	6.3
Scotland	1977	8.1	9.8	6.5
Israel	1977	6.5	8.2	4.8
Northern Ireland	1977	4.6	5.0	4.1
Spain	1975	3.9	5.9	2.0
Greece	1976	2.8	3.8	1.8

Source WHO statistics.

There can be little doubt about the validity of the drop in the suicide rate in the 1960s—no compensating increases are evident in gassing and drowning fatalities assigned to the accidental and open verdict categories of the International Classification of Diseases and although there was a slight escalation in non-suicide poisoning deaths it was by no means a sufficient counterbalance (Barracough 1972). Thus extensive research has been undertaken in an attempt to uncover suitable explanations for the sudden change in trends. Many interesting theories have been suggested¹⁰ but this section will focus only on some of the more plausible arguments.

10 For example the psychoanalytic view of homicide and suicide as alternative manifestations of aggression externalised and internalised respectively suggests that the concomitant increase in homicide incidence may be of some relevance. Although the rise in the murder rate was of the same order of magnitude as the fall in that for suicide between 1963 and 1970, the additional number of annual homicides at the end of the period compared to the beginning was just 94, which was equivalent to only 5 per cent of the corresponding reduction in total suicides. At the same time, however, offences of violence against the person known to the police doubled to reach 41,100 in 1970.

It may well be that improved knowledge and treatment of psychiatric illness contributed to some of the decline in the suicide rate. By the beginning of the 1960s retrospective studies undertaken in the United States (Robins *et al* 1959; Dorpat and Ripley 1960) had established that 90 per cent of suicides suffer psychiatric illness – most frequently depression followed by alcoholism – at the time of death. More recently, Miles (1977) bringing together evidence from a variety of sources, has concluded that almost all American suicides can be attributed to the following causes: depressive illness, alcoholism, schizophrenia, neurosis and personality disorder, and drug addiction. Similar findings have been obtained in this country: Barraclough and his Medical Research Council colleagues (1974) studied 100 suicides between 1966 and 1968 and diagnosed mental illness in 93 per cent of cases. (Uncomplicated depressive illness accounted for 64 per cent, alcoholism for 15 per cent and schizophrenia for 3 per cent.)

These authors also found that a substantial proportion of suicides were in contact with medical agencies. More than 90 per cent had consulted either their family doctor or a psychiatrist within one year of death and 48 per cent within one week; 24 per cent had in fact received psychiatric help in the 12 months preceding death and half of these had made contact in the final week. In addition, more than 80 per cent were receiving psychotropic drugs implying that the suicides were recognised by their doctors as being psychologically disturbed. In the context of these findings it may be inferred that some of the reduction in the suicide rate during the 1960s may thus be linked to the increasingly widespread and successful treatment of suicide-prone individuals with antidepressant medication. Between 1963 and 1970 the number of prescriptions for antidepressants written by general practitioners in England and Wales rose from 2.4 to 5.8 million, a trend which Barraclough (1972a) found correlated well with the deceleration in the suicide rate¹¹.

Following another medical approach, the reduction in suicidal deaths has been linked with the officially recommended introduction in the 1960s of routine psychiatric consultations following 'attempted' suicide (Greer and Bagley 1971; Kennedy 1972). Given that one-third or more of suicides have previously made an 'attempt' and that one-sixth have done so in the year before their death effective psychiatric intervention would appear to have the potential for an important preventative role. However, studies

11 The failure to prevent the suicide deaths of those recorded in the MRC series may indeed be attributed, *inter alia*, to a certain amount of inappropriate prescribing. Only one-third of the suicides with depression were being prescribed antidepressant therapy. Furthermore, within this group some patients were not being given the most suitable form of this type of medication, others were taking insufficient dosages and there was some evidence of an unawareness of treatment failures and the implicit need to pursue alternative therapeutic regimes.

quoted by Weissman (1974) generally reported 'a high dropout rate for outpatient referrals, patient reluctance to undergo treatment and a wide discrepancy between recommended and received treatment'.

More positively, it seems reasonable to suppose that the steady improvement since the 1960s in the emergency services and in the hospital treatment of poisoning have had an impact on the number of completed suicides. More extensive training and the availability of better emergency facilities have meant that ambulance crews have become increasingly able to put resuscitation methods into effect well in advance of reaching hospital so that today if the patient is still alive on arrival at casualty it is very rare that he or she does not survive. Although this must have a direct bearing on the proportion of would-be suicides who die, and therefore on suicide rates, there is obviously no scope for confirming this supposition by means of controlled investigation.

Another claim to responsibility for the declining suicide rate in the 1960s comes from the Samaritans Incorporated. This organisation, which was founded in 1953 by the Reverend Chad Varah, now offers a nationwide, advertised, 24 hour and completely confidential listening and befriending service to the distressed and suicidal.¹² Their case, *prima facie*, carries some degree of persuasion; the rapid growth of the organisation during the 1960s – the numbers of new client contacts increased steadily from 12,000 in 1964 when records were first kept to over 156,000 in 1972 (Fox 1975) – parallels the decline in the suicide rate. Corroborative evidence for a direct relationship of this nature is available from Vienna where, following the opening of a suicide prevention centre, there was a marked decline in the suicide rate which was not experienced throughout the rest of the country (Ringel 1968).¹³

A scientific case has also been made. Bagley (1968) compared changes in suicide rates in 15 pairs of towns in England and Wales, one town of each pair being served by the Samaritans whilst the other was a non-branch (control) town chosen in one part of the study on grounds of 'ecological' similarity and in a second approach according to predictors of the future suicide rate. Bagley's results were impressive. The 15 Samaritan boroughs showed a fall in their average suicide rate of 6 per cent, while control boroughs

12 There are now 176 local branches throughout the country which, coupled with large numbers of satellite befriending groups and sub-offices in smaller towns, received an estimated 1.5 million calls (18 per cent of which were new callers) in 1979.

13 In contrast, Lester (1973) in a study of suicide prevention centres in cities in the United States, found no apparent relationship between their presence and changes in suicide incidence. Fox (1975) attributed the discrepancy to peculiarities of the American approach including the absence of a national image, branch variations in techniques and publicity campaigns, fewer centres per unit of population and the predominance of the telephone in counselling.

experienced rises – 20 per cent for towns chosen on ecological criteria and 7 per cent when suicide rate predictors were used. The differences were statistically significant and appeared to provide support for the contention that the Samaritans prevent suicide.

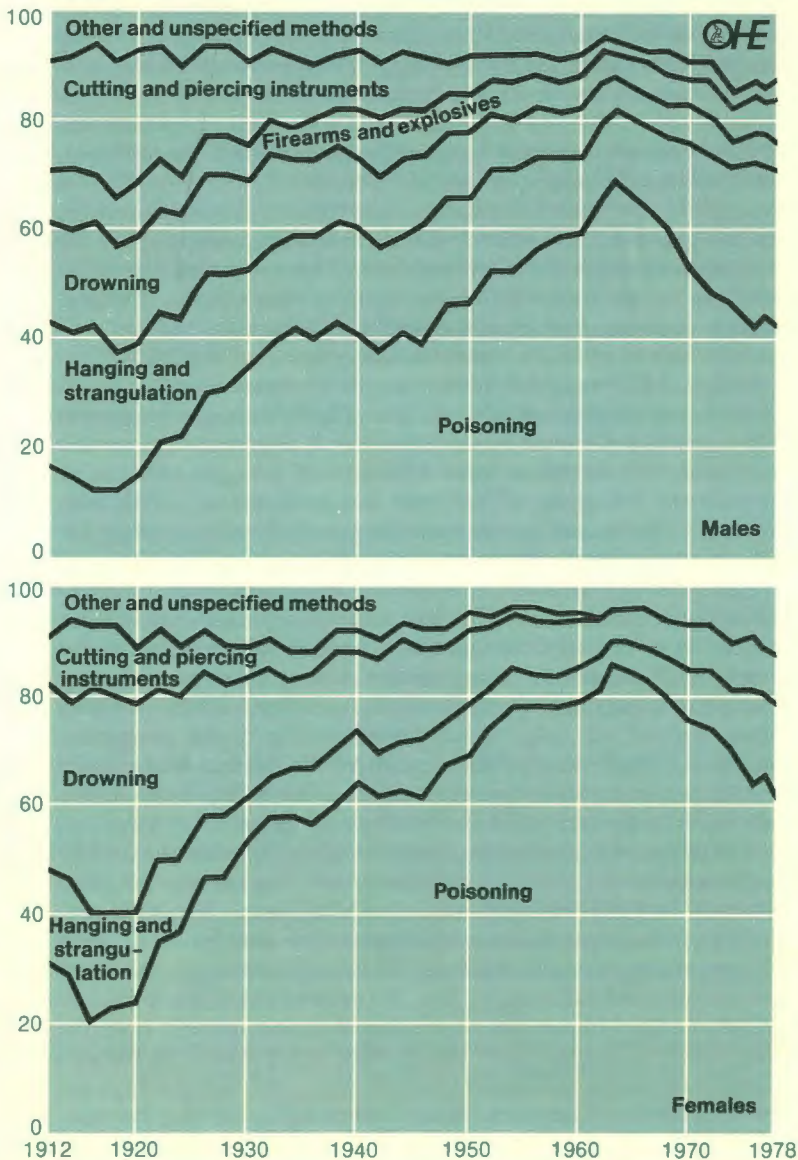
The findings remained unchallenged until a replication of the study nine years later (Barracrough *et al* 1977, Jennings *et al* 1978). These authors matched Bagley's original 15 towns with a new control group and tested three new samples of paired towns. They were unable to detect any significant difference in suicide rate trends between Samaritan and non-Samaritan cities. But this study too has been the subject of critical discussion. Lawton (1977a, b) for example has drawn attention to the complexities inherent in choosing appropriate control towns: those supposedly eligible for this category may in fact be considered to be receiving a Samaritan *service* by virtue of their proximity to towns which do actually have branch facilities. And from a re-analysis of the data produced by Barracrough *et al*, Innes (1980) has suggested that the Samaritans may in fact influence the suicide rate in a proportion of towns. In the event of all this confusion perhaps Bagley's view, expressed in 1977, provides the most appropriate concluding comment on this discussion: 'the methodological difficulties of using the suicide rate to evaluate Samaritan efficacy are too great for any valid conclusions to be drawn. Samaritans may be effective in reducing suicide rates to some extent, but there is no way of proving this.'

Finally there are two other important difficulties for the 'Samaritan hypothesis'. The steady decline in the suicide rate ceased at the beginning of the 1970s in spite of a continued expansion in the numbers of Samaritan branches and clients at least until 1975. These two trends have yet to be satisfactorily reconciled with each other. Second, the suicide rate for Samaritan clients is approximately the same as that for depressive illness and Barracrough (1980) has argued that if the organisation does reduce the incidence of suicide the former should be less than the latter.

A number of commentators have sought to explain the decline in the suicide rate during the 1960s in terms of the changes that occurred in the availability and lethality of certain means of self-poisoning. Taken as a whole, the latter accounted for 69 per cent of male and 85 per cent of female official suicides in 1963 but these proportions had fallen to 53 and 76 per cent respectively by 1970 (Figure 6). One important development in this context over the past two decades has been the gradual replacement of barbiturates for insomnia and minor neurotic symptoms by the very much less lethal benzodiazepines. Thus between 1964 and 1974 the numbers of official suicides attributable to barbiturates used alone or in combination with other substances declined from nearly 1,500 to less than 1,000; over the same period of time prescriptions written for these drugs dropped by approximately 50 per cent to 8.6 million in 1974.

Figure 6 *Suicides analysed by method, England and Wales, 1912-78, percentages*

Percentage of suicide deaths



Source Registrar General.

Note In the data preceding 1962, suicides resulting from poisoning with 'other' gases are included in the 'other and unspecified methods' classification.

However, attention has tended to focus more intensively on the significance of domestic gas in suicidal poisoning. Gas manufactured from coal, which is highly toxic because of its carbon monoxide (CO) content, first became available in England and Wales during the nineteenth century when it was used almost exclusively for public lighting. It was not until the early years of the twentieth century that it was introduced on a general scale into the domestic environment, initially for lighting and subsequently for heating and cooking (Farmer 1980). This last change meant that it could be used in suicide and between 1912 and the peak year of 1958 the death rate for suicide by domestic gas poisoning increased from 5 to 67 per million for males and from 2 to 51 per million for females.

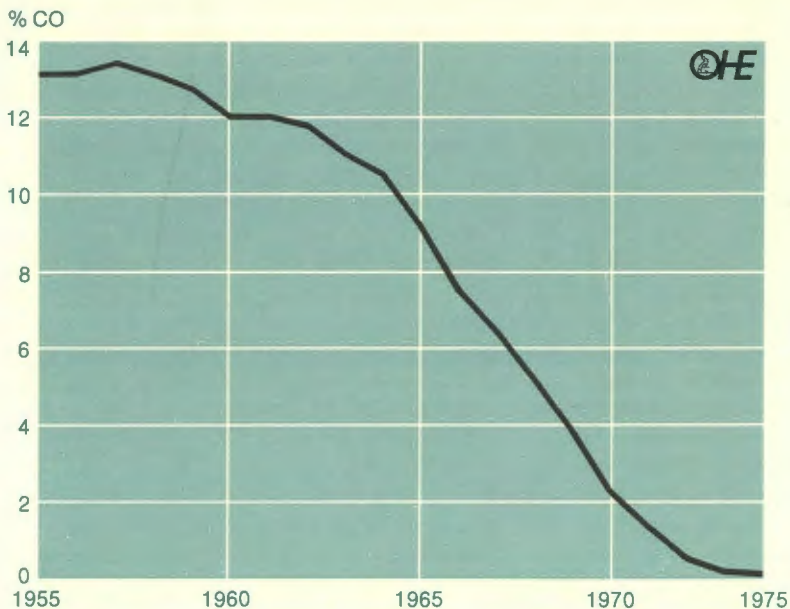
At the time of nationalisation of the gas industry in 1948 gas was still produced entirely from coal and contained between 10 and 20 per cent carbon monoxide (Kreitman 1976). Technological advance in the early 1950s generated a method of manufacturing gas from oil derivatives and naphtha began to be used. This yielded a product miscible with coal-based gas, but containing a proportion of carbon monoxide, which although high initially, was rapidly reduced to only 1.1 per cent. The proportion of oil-based gas in domestic supplies rose from about 7 per cent in 1955 to 64 per cent in 1969. The last change was the introduction of natural gas, beginning in 1958 and gaining in tempo steadily thereafter. It is virtually free of carbon monoxide and by 1971, 69 per cent of the gas supplied to domestic consumers was natural gas.

Given the proportions of the three types of gas supplied to the nation since 1955 and the carbon monoxide content of each variety, Kreitman (1976) has calculated the approximate CO content of the supplies reaching the average household. The results, depicted in Figure 7, indicate an initial decline between 1957 and 1962 followed by a much steeper fall. Figure 8 then shows a downturn in domestic gas suicides which dates from about the time when the CO content of domestic gas began to fall. Kreitman concluded that a direct causal link ascribing the former to the latter seemed highly likely. Taking the analysis to its conclusion, it is clear from Figure 8 that the decline in suicide by domestic gas has been sufficient to lower the total suicide rate; indeed exclusion of the former would have resulted in a slight *increase* in the overall rate between 1963 and 1970 instead of the recorded 33 per cent drop.¹⁴

The 'domestic gas hypothesis' is sustained by two other relevant observations. First, the decline in the crude suicide rate began shortly after the beginning of the detoxification of domestic gas,

¹⁴ Kreitman's (1976) detailed age specific analysis showed that the decrease in suicide by domestic gas was sufficiently large to lower the suicide rate at all ages but in so doing it concealed an appreciable increase in young men and women of suicide by other means.

Figure 7 *Percentage of carbon monoxide in domestic gas supplies in Britain 1955-75*

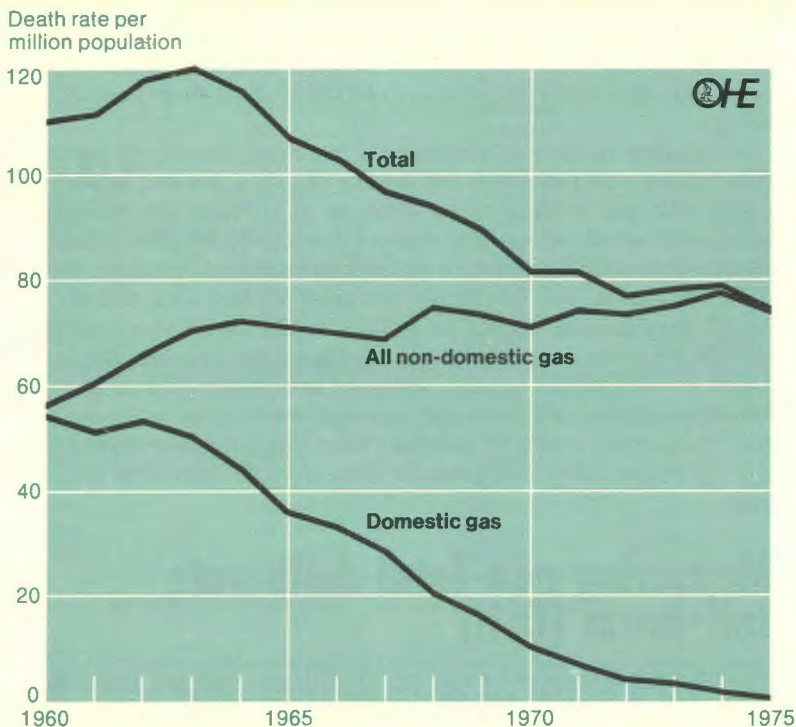


Source Kreitman 1976.

and levelled off in the same year (1971) that the average concentration of carbon monoxide fell below two per cent. Second, the actual rates of the total decline and of the decline in suicidal deaths from carbon monoxide were approximately equal: indeed the two curves are not merely similar but show numerically equal changes over the relevant period (Brown 1974). Further support may be adduced from an investigation by Hassall and Trethowan (1972) which demonstrated that the sharp decline in the suicide rate in Birmingham between 1963 and 1970 was wholly due to a reduction in deaths due to domestic coal gas and from findings of a similar nature in Vienna (Farberow and Simon 1969) and Brisbane (Whitlock 1975).

Inevitably, the proposed explanation is not without its critics. Sainsbury and his colleagues, for example, in some preliminary studies for their project conducted on behalf of the World Health Organisation found that in Holland the suicide rate increased as much in the provinces where the change-over to natural gas had been completed as in those still awaiting conversion. However, Kreitman (1980) has pointed out that in Holland coal gas was never a popular means of suicide and its elimination could not have been expected to make much difference to the overall suicide rate. Furthermore, the impact of method availability and lethality on

Figure 8 *Crude suicide rates by means of death, England and Wales, 1960-75*



Source Registrar General.

the suicide rate and the appropriate methodology for studying it are currently controversial areas in suicide research. Thus Farmer's (1980a) interpretation of the Dutch figures suggests that suicide rates by domestic gas are intimately related to the availability and lethality of the latter.

Perhaps one of the most intriguing questions concerning the domestic gas hypothesis and the declining suicide rate in England and Wales in the 1960s relates to the apparent absence of widespread switching to other methods of suicide once gas had become non-lethal. As Kreitman (1976) has observed 'there is no shortage of exits from this life . . . Anyone bent on self destruction must eventually succeed'. Perhaps for some individuals the scenario of suicide specifies the use of a particular method and if this becomes unavailable the actual suicide is then less likely. It may also be relevant that carbon monoxide poisoning is a rapidly lethal, painless and non-disfiguring means of suicide. Alternatively, the experience of a failed attempt with the new 'safe' gas may have fulfilled a cathartic function leading to profound psychological change and the loss of any suicidal predisposition. For individuals not affected

in this way, resort to alternative means may not have been a straightforward solution, either as a result of practical considerations as with hanging for some elderly would-be suicides or because other methods too had become less lethal, for example the substitution of benzodiazepine preparations for the barbiturates. In reality, however, little is understood about these complex issues.

In a review of the explanations for the trends during the 1960s Brown (1979) concluded that 'the decline cannot at present be attributed with any confidence to attempts to alleviate the mental, emotional, social, or spiritual state of potentially suicidal people. The most convincing evidence so far is in favour of fortuitous extraneous events, not specifically designed to deal with the presumed psychosocial origins of suicidal behaviour. These events include the reduction in toxicity of domestic gas supplies, the reduced lethality of prescription sedatives and improved treatment for self-poisoning'. Of these only the first was unique to England and Wales; other countries benefited from the latter developments but still experienced rising suicide rates over the period in question.

Measuring non-fatal deliberate self-harm (DSH)

As with suicide, there are a number of problems with the available data relating to DSH. The principal source of information is the Hospital Inpatient Enquiry (HIPE) but because the latter has only been in operation since the 1950s extensive time series analysis is clearly not possible. Furthermore, unlike the Registrar General's Mortality tables which code fatalities by both external cause (that is, 'source') of injury and the nature of the latter (so that, for example, suicidal hanging would be coded as suicide – hanging – and as asphyxiation) hospital morbidity data only take account of the nature of injury. Studies of DSH therefore usually employ poisoning by chemicals and medicinal agents as a proxy indicator of such trends. But poisonings are not of course exclusively cases of DSH – notably among the youngest age groups – and nor do all such episodes involve poison. In respect of the last point it is virtually impossible to extract from the annual incidence of cuts, lacerations, fractures and other injuries (equivalent to an estimated 321,500 discharges and deaths, over 15 years of age, from hospitals in England and Wales in 1977) those instances in which some degree of intentional, self-damaging behaviour was involved.

Hospital-based information is likely to underestimate the extent of DSH because some patients are admitted to, and immediately after treatment discharge themselves from, 24 hour short stay wards which are not HIPE registered. Furthermore, hospital data

Table 3 *Estimated total discharges and deaths for the adverse effects of medicinal agents and chiefly non-medicinal substances, England and Wales, 1961-77*

	<i>Adverse effects of medicinal agents</i>	<i>Adverse effects of substances chiefly non-medicinal</i>	<i>Total</i>
1961	23,900	4,500	28,400
1962	28,700	5,400	34,100
1963	39,000	7,400	46,400
1964	42,900	8,100	51,000
1965	45,600	8,600	54,200
1966	50,300	9,500	59,800
1967	57,200	10,800	68,000
1968	62,320	12,130	74,450
1969	75,550	14,570	90,120
1970	79,160	14,020	93,180
1971	85,370	14,510	99,880
1972	91,440	14,280	105,720
1973	92,970	14,200	107,170
1974	98,290	14,870	113,160
1975	105,290	15,080	120,370
1976	108,210	17,030	125,240
1977	106,710	14,740	121,450

Source Hospital Inpatient Enquiry.

will obviously exclude episodes of minor self-inflicted injury treated without further referral by general practitioners as well as an unknown number of cases in which no medical attention of any kind is sought.

The findings of independent research groups provide a valuable additional source of information. In particular they have generated detailed corroborative evidence of national trends at local levels. However, their principal limitations lie in the use of different criteria to define cases of DSH, thereby inhibiting inter-survey comparisons, and in their dependence on information obtained from patients themselves.¹⁵

Trends

Table 3 indicates that since 1961 there has been substantial growth

¹⁵ In some instances patients are genuinely unable or simply refuse to recall the reasons for their actions while in others they may fabricate motivations deemed to be more acceptable 'excuses' for the episode. Before the change in the law in 1961 the problem of obtaining information from patients was even greater because 'attempted suicide' was a criminal offence, although not a felony like suicide, and was punishable by fine or imprisonment. The law was implemented capriciously (Stengel 1964) but the number of prosecutions for attempted suicide was far from negligible: during 1946-55 some 45,000 cases were known to the police. Of these, almost one in eight were brought to trial; 5,447 (94 per cent) were found guilty, of whom 308 were sent to prison without option of a fine, the last instance as late as 1955 (Trethowan 1979).

in the number of episodes of poisoning each year; this wholly contrasts with the trends for completed suicide described in the previous section of this paper. The most recently available figures indicate that in England and Wales in 1977 there were approximately 121,450 discharges and deaths related to poisonings and that 106,710 of these involved medicinal agents.¹⁶ Focusing on the latter, the data indicate that 86 per cent or approximately 91,670 cases concerned individuals aged 15 years and over. This figure is not solely comprised of DSH: it also embraces episodes of accidental overdose, adverse reactions to medicines, perhaps some attempted homicides and cases of drug addiction. Nevertheless when deliberate self-poisoning that goes unrecorded is taken into account it seems reasonable to suggest that the current incidence is probably in the region of 100,000 episodes per annum, an estimate upheld by a number of independent studies (for example, Jones 1977).¹⁷

On this basis it appears that there are now at least 20 cases of non-fatal deliberate self-harm for every completed suicide, compared to a probable ratio of 6 or 7 to 1 in the immediate post Second World War years (Trethowan 1979).

Between 1961 and 1977 the annual growth in the total number of hospital discharges and deaths stemming from the adverse effects of medicinal agents averaged 10.1 per cent.¹⁸ Disaggregating the data draws out some important age/sex specific trends within this overall pattern of change. Thus Figure 9 reveals that the highest rates of growth have occurred among young people. Focusing on females in particular (because at all pre-retirement

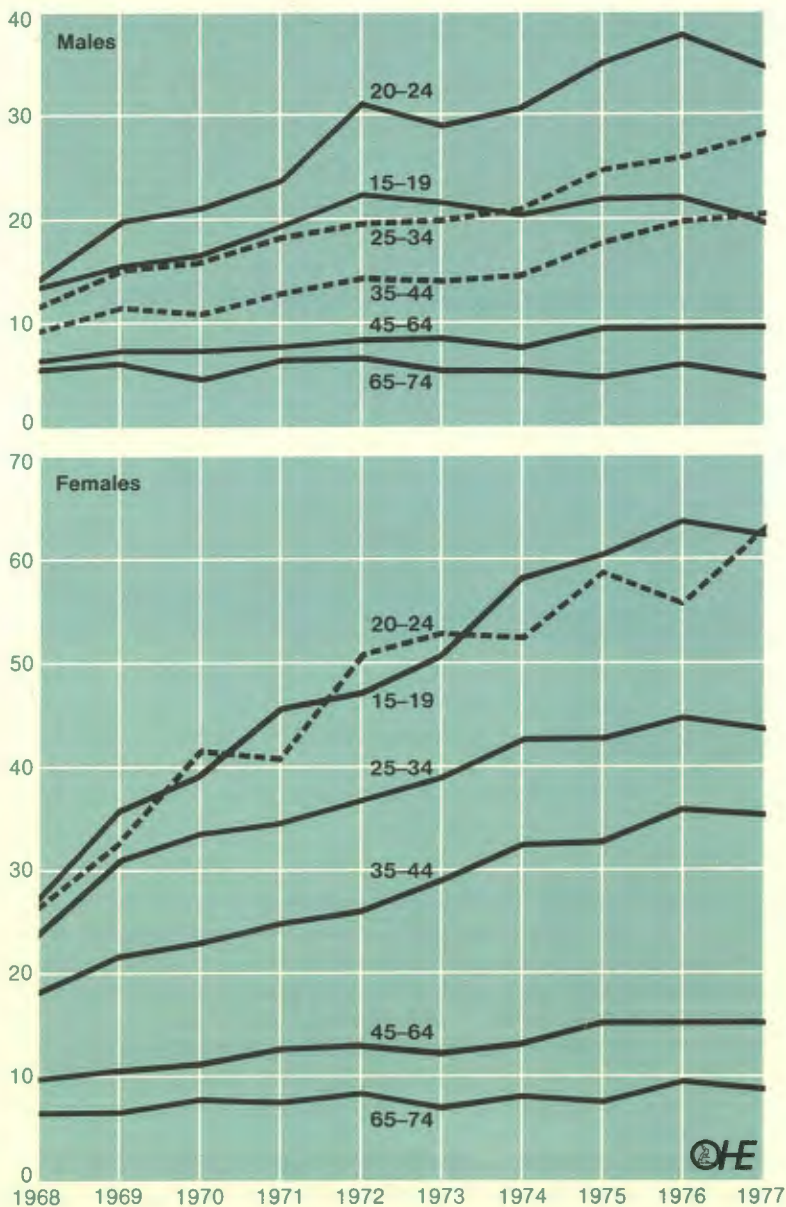
16 Of the 14,740 discharges and deaths for adverse effects of 'substances chiefly non-medicinal' approximately 9,070 involved children under the age of 15 years and hence are most probably accidental poisonings or adverse reactions.

17 During a prospective study of 1,641 cases spanning the whole spectrum of drug related problems treated in one month by 62 casualty departments in the Greater London area, Ghodse (1977) was able to categorise 58 per cent as deliberate self-poisoning, 24 per cent as accidental overdoses, 14 per cent as non-intentional overdoses in the course of drug addiction with 18 per cent allocated to an 'unknown' category. These proportions imply that the DSH component of all hospital admissions for adverse reactions to medicinal agents involves approximately 62,000 episodes. If this figure is supplemented with an estimate of the shortfall implicit in hospital based data as demonstrated by the finding that GPs see 30 per cent of episodes without further referral (Kreitman 1977) then an overall figure of 89,000 episodes per annum may be derived. It requires emphasis of course that this figure is still an underestimate: it will exclude DSH with non-medicinal chemical agents and cases of intentional physical self-injury; a certain proportion of Ghodse's unknown category is likely to consist of DSH episodes – assuming half to be an acceptable 'guesstimate' would raise the basic overall figure to more than 102,000; finally Ghodse was looking at casualty cases not hospital admissions – Edinburgh data shows that hospital treated poisonings are accidental in only about 2 per cent of adult cases.

18 Adverse effects of non-medicinal substances averaged 8.3 per cent per annum over the same period.

Figure 9 Age specific hospital discharge rates for adverse reactions to medicinal agents, England and Wales, 1968-77

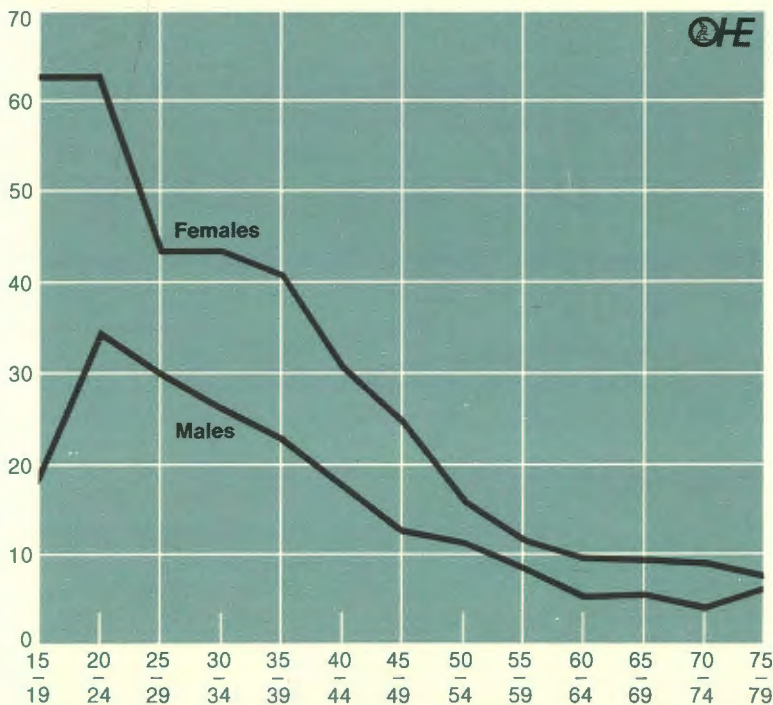
Discharge rate per 10,000 population



Source Hospital Inpatient Enquiry.

Figure 10 Discharge rate per 10,000 population for adverse effects of medicinal agents, by age and sex, England and Wales, 1977

Discharge rate per
10,000 population



Source Hospital Inpatient Enquiry.

ages their rates are considerably greater than those for males (Figure 10)) the data show that between 1968 and 1977 the discharge rates for women aged 15-19 and 20-24 increased by 129 and 134 per cent respectively while that for all persons aged 15 and over rose by about 90 per cent. Indeed of the 91,670 discharges and deaths for adverse effects of medicinal agents among persons aged 15 years or over in 1977 65 per cent involved females and, more specifically, 24 per cent involved females aged between 15 and 24 years (Table 4).

Similar trends have been observed both in specific centres – Newcastle upon Tyne General Hospital (Smith and Davison 1971) and selected casualty departments in the Greater London Area (Ghodse 1977) – and at various subnational levels, for example in

Table 4 *Percentage distribution of discharges and deaths for adverse effects of medicinal agents among those aged 15 years and over by age and sex, England and Wales 1977*

Age Group	Males per cent	Females per cent	All per cent
15-19	11.9	19.2	16.6
20-24	18.9	17.5	18.0
25-34	30.8	25.3	27.8
35-44	17.9	16.5	17.0
45-64	16.1	15.2	15.2
65-74	2.9	4.1	3.7
75 and over	2.5	4.0	2.0
	100	100	100
Actual discharges and deaths over 15 years	32,220	59,450	91,670

Source Hospital Inpatient Enquiry.

Southampton (Gibbons *et al* 1978), Bristol (Morgan 1979), Oxford (Bancroft *et al* 1975) and in Edinburgh (Kreitman 1977).¹⁹

The Regional Poisoning Treatment Centre (RPTC) in Edinburgh provides particularly thorough documentation which now extends over the period from 1968 to 1978. The centre has a 100 per cent admission policy and covers virtually all hospital referred self-poisoning in Edinburgh residents aged 15 years and over. Figure 11 shows that although data for 1978 disrupt the continuity of previous trends, all three measures have increased over the period for both sexes. Thus crude admission rates for males and females increased by 46 and 67 per cent respectively over the period. But as Table 5 makes clear the most substantial increases have tended to occur among females in their early twenties.²⁰

19 The Bristol and Oxford Studies used a definition of DSH approximately comparable with that in the Edinburgh series. The former reported a patient rate, that is an annual person rate per 100,000 of those aged 15 and over, which, averaged for 1972 and 1973, was 157 for men and 307 for women. During the same period and similarly averaged the Edinburgh values were 212 and 340 for men and women respectively. Thus the Edinburgh figures are relatively high, the discrepancy being proportionally greater for men. The Oxford study reported rates for mid-1972 to mid-1973 for the city of Oxford of 245 and 472 for males and females, which exceeded the corresponding Edinburgh figures of 219 and 354. In general, however, comparison of the Edinburgh and Oxford data yields no consistent differences.

20 Applying the 1978 Edinburgh admission rates to appropriate population data for England and Wales generates a figure for annual DSH episodes seen in hospitals of 150,000; this rises to 215,000 if GP only episodes are included. The former estimate is 50 per cent greater than the usually quoted one and may reflect *inter alia* more intensive case finding and 'sampling' differences.

Figure 11 *Parasuicide rates per 10,000 population, Edinburgh, 1968-78*

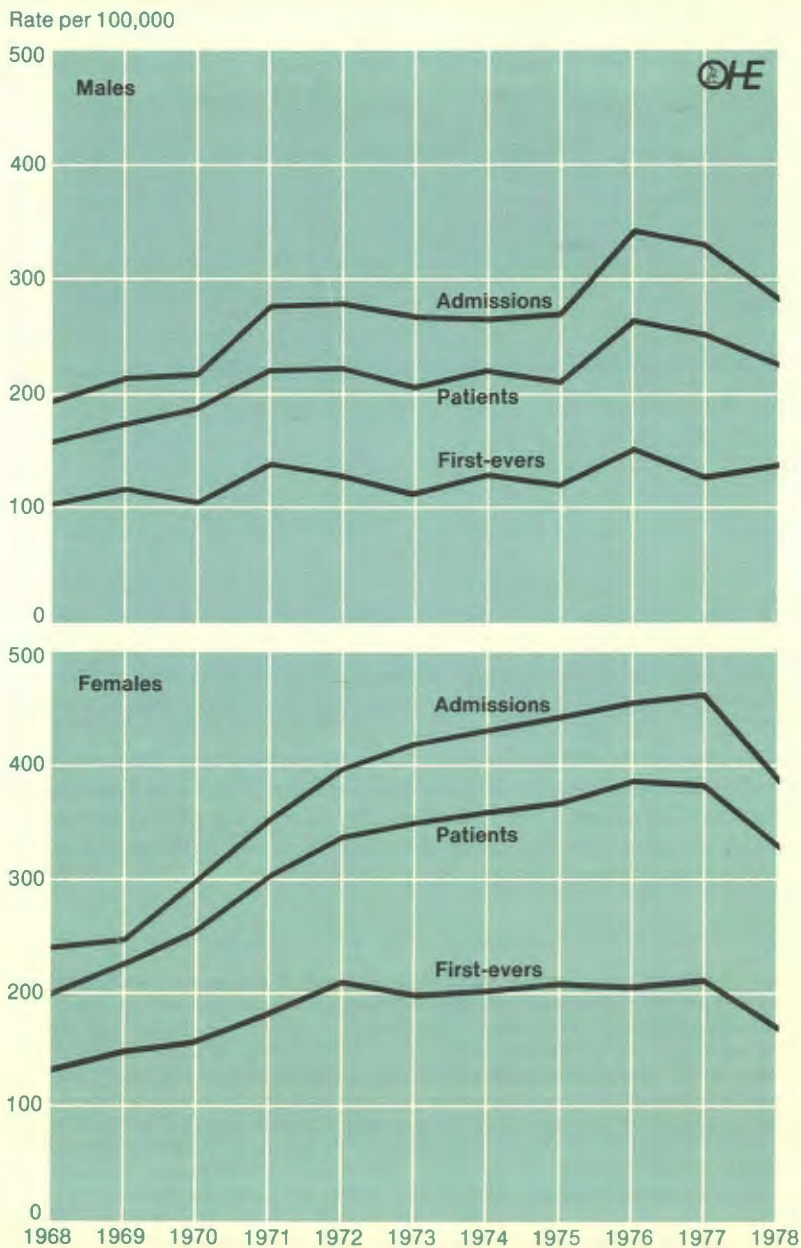


Table 5 Sex and age specific DSH rates per 100,000 (Edinburgh residents) in 1978 and percentage increase over the period 1968-78

Age	Admissions				Patients				First-ever			
	Male		Female		Male		Female		Male		Female	
	Rate	% increase	Rate	% increase	Rate	% increase	Rate	% increase	Rate	% increase	Rate	% increase
15-19	372	103	803	87	345	101	709	79	256	71	520	69
20-24	603	104	1029	167	467	84	816	135	285	101	447	95
25-34	386	21	565	15	276	16	448	19	160	129	166	-30
35-44	365	60	547	77	267	44	441	82	127	22	184	26
45-54	158	-16	264	71	131	-13	239	98	79	-6	134	72
55+	103	34	81	31	89	33	76	27	60	30	44	19
All 15+	282	46	393	67	222	41	328	66	135	35	171	32

Source Annual Reports of the Edinburgh RPTC.

Table 6 *Percentage of estimated total hospital discharges and deaths originating from the adverse effects of medicines, by specific medicinal agents, England and Wales 1968 and 1977*

<i>Adverse effects of</i>	<i>1968</i>	<i>1977</i>
Antibiotics and other anti-infectives	1.4	1.7
Analgesics and antipyretics	25.6	23.1
Other sedatives and hypnotics	23.8	9.4
Psychotherapeutics	14.7	30.0
Agents primarily affecting the autonomic nervous system	2.2	1.0
Agents primarily affecting the cardiovascular system	1.1	1.6
Alcohol in combination with specified medicinal agents	1.8	3.7
Others	29.4	29.5
	100	100

Source Hospital Inpatient Enquiry.

The drugs used in DSH

Concomitant with the rapid growth in the annual incidence of non-fatal self-poisoning have been pertinent changes in the types of drug employed in such episodes. Table 6 indicates that three groups of medicines – analgesics and antipyretics, other sedatives and hypnotics and psychotherapeutics – together accounted for a similar proportion (just under two-thirds) of adverse medicinal effects requiring hospital treatment in both 1968 and 1977. However, within this group there were substantial changes in relative significance. Thus the frequency with which sedatives and other hypnotics (in which barbiturates are included) are encountered has declined to less than one episode in ten but this has been counter-balanced by a doubling of the relative importance of psychotherapeutics. Over the period 1968–77 there has been little change in the extent to which analgesics and antipyretics are used but, conversely, it may be noted that alcohol is increasingly found as an accompaniment to drug overdose.

Studies at a local level confirm these trends and point to several important implications. For example, admissions data collected by the RPTC in Edinburgh between 1967 and 1976 indicated that the proportion of patients who had taken barbiturate hypnotics declined from 30 to 15 per cent over the decade (Proudfoot and Park 1978).²¹

A felicitous consequence of the changing pattern of drugs taken in deliberate overdose was a reduction from 23 to 15 per cent in

²¹ More recent data for 1978, although not strictly comparable because it includes only those patients resident within Edinburgh city limits, indicates that the proportion of all cases stemming from barbiturate overdose has fallen even further to between 5 and 6 per cent of admissions.

the proportion of patients admitted in a state of unconsciousness.^{22,23} And within this group, it was found in the second half of the study period that the percentage admitted in the least serious grade of coma (grade 2) had increased (to 50 per cent in 1976) at the expense of that in the next grade (29 per cent) while the proportion admitted in the deepest coma (grade 4) had not altered significantly (21 per cent). On a note of caution, however, the study points out that these benefits, derived largely from the reduced prescribing of barbiturates, may be increasingly devalued by the raised tendency to use tricyclic antidepressants in self-poisoning. In overdose the latter may involve potentially fatal convulsions and cardiac dysrhythmias and, as a result of delirium and hallucination, recovery may be delayed.

Finally, Table 6 indicates that the share of analgesics and antipyretics in the spectrum of drugs employed in self-poisoning has altered only marginally in recent years. But within this broad group a number of workers have observed an increasing tendency to use paracetamol as a means of overdose, particularly among teenagers (Hawton 1980). In part this reflects medical preference for the drug in situations requiring a simple analgesic and its ready availability without prescription. However, the consumption of large quantities of paracetamol does not lead to rapid loss of consciousness and may cause fatal hepatic necrosis (Davison and Eastham 1966). There is evidence of a widespread unawareness of these possibilities among individuals who employ this particular drug in episodes of deliberate self-harm (Gazzard *et al* 1976).

Profiles of suicidal and self-harmful behaviour

The classic Maudsley monograph *Attempted Suicide* by Stengel and Cook (1958) drew a clear, although to some degree overlapping, distinction between 'attempted' and completed suicide. Subsequently, other workers have undertaken detailed investigations and stereotype representatives of each population have emerged. Focusing first on completed suicide, the principal characteristics may be summarised as follows: for both sexes suicide rates increase with

²² The authors also comment that these developments may mean that consensus estimates of the extent of deliberate self-poisoning based on hospital data may underestimate the true incidence. Because benzodiazepines rarely cause serious or prolonged central nervous system depression fewer patients may therefore be referred to hospital.

²³ Unpublished data from the Oxford research team confirm these trends: 11.7 per cent of their admissions were treated in intensive care units in 1972-73 compared to 2.6 per cent in 1977.

age but for each grouping male rates exceed those for females; the highest and lowest socio-economic groups have a raised incidence (Table 7); higher rates are associated with divorce, bereavement and urban residence (Table 8);²⁴ almost all completed suicides have a history of mental illness, notably depression and/or chronic alcoholism.

On a relatively superficial level 'attempted' suicide exhibits quite dissimilar and occasionally totally contrasting characteristics. Thus the paradigm for this population is the young married female, perhaps with a degree of personality disorder as opposed to overt mental illness whose action of non-fatal deliberate self-harm may have been intended to communicate anger, to frighten or influence family members or close friends (Bancroft *et al* 1979) or to provide a means of temporary respite from an unpleasant, often emotionally disturbed situation. Finally, Sainsbury (1967, 1973) has elaborated important discrepancies of a methodological and behavioural nature. Suicides usually plan their death carefully. It has the appearance of a premeditated act, deliberately undertaken to avoid discovery and to ensure death. The methods employed are the ones most likely to be lethal: large doses of barbiturates, shooting and hanging. With 'attempted' suicides, on the other hand, the action is frequently unplanned, impulsive and undertaken in a way which invites discovery whilst the methods, most often involving mild drug overdoses, have a much reduced likelihood of leading to death.

Table 7 *Deaths from suicide by age and social class, males aged 15-64 in 10 year age groups, England and Wales, 1970-72, Standardised mortality ratios (ie, ratio of observed to expected deaths × 100)*

Age group	Social class					
	I	II	III Non-manual	III Manual	IV	V
15-24	91	80	97	70	160	208
25-34	80	92	92	72	119	245
35-44	125	81	125	73	113	219
45-54	119	89	126	77	114	171
55-64	124	96	114	88	109	143
All ages	110	90	85		117	184

Source Registrar General.

²⁴ Farmer *et al* (1977) examining suicide rates in London, have shown that boroughs with high rates contain a large proportion of people who have changed their residence within a year of the last census, many single-person households and have a low incidence of marriage. The authors suggest that their findings support the hypothesis that people likely to kill themselves tend to concentrate in certain areas rather than the alternative view that the social factors precipitating suicide are more common in certain boroughs than in others.

Table 8 *Suicide rates per million population for conurbations, urban and rural areas, by sex and age, England and Wales, 1959-63 and 1970-73*

	15-44		45-64		65+		All ages	
	M	F	M	F	M	F	M	F
Conurbations								
1959-63	127	77	263	187	402	197	157	107
1970-73	103	62	164	125	210	131	104	75
Urban areas								
100,000+								
1959-63	101	64	249	179	430	193	145	99
1970-73	92	43	149	111	222	131	97	64
Urban areas								
50,000-100,000								
1959-63	111	62	247	199	364	207	140	104
1970-73	84	50	144	125	179	148	87	73
Urban areas								
under 50,000								
1959-63	100	42	240	164	345	173	136	86
1970-73	74	38	141	105	186	114	84	58
Rural districts								
1959-63	79	43	219	127	317	110	118	64
1970-73	82	37	155	99	218	96	93	51

Source Registrar General.

As confirmed by previous sections of this paper, many of these distinctions retain a high degree of validity. However, it has become clear that the boundaries between and within the two populations are in reality considerably more blurred than those suggested by initial investigations in this field. In part this is a reflection of increasingly detailed studies covering a much extended range of variables. It is also a function of methodological and related deficiencies in some of the earlier work. In a study of the prevalence of completed and 'attempted' suicide in Edinburgh, Kennedy *et al* (1974) pointed out that the epidemiological evidence to support the Stengel and Cook thesis describing the two manifestations of suicidal behaviour was generally drawn from different and often disparate populations over inconsistent time periods. Further, it was marred by poor definition of the groups at risk, rather limited case-finding techniques, and by incongruities with regard to the question of appropriate definitions for the two phenomena.

The study by Kennedy *et al* (1974) was designed to avoid such defects. Generally, the results confirmed the widely observed epidemiological distinctions and the diverging secular trends described in the present paper, thereby substantiating the contention

that the two forms of suicidal behaviour have different aetiologies. However, the authors also identified a common ecological setting: the highest rates of 'attempted' and completed suicide were found in the impoverished slum areas characterised by high levels of geographical mobility and indices of social disorganisation such as overcrowding, eviction, children taken into care and family dislocation and crime.

The concept of an area of 'overlap' intruding into the completed and 'attempted' suicide populations has been demonstrated both by follow-up studies of the latter (which suggest that, depending upon the duration of follow-up, between 10.3 and 22 per cent subsequently commit suicide) and by retrospective studies on suicides indicating that a proportion varying from 8.6 to 33.1 per cent²⁵ have made previous attempts (Dorpat and Ripley 1967). It has more recently been studied in some detail in the Edinburgh Regional Poisoning Treatment Centre (RPTC) series by Ovenstone (1973). It was found that the overlap group (defined as completed suicides with a history of a previous attempt) comprised almost half (47 per cent) of the suicide group, a proportion considerably in excess of that generally reported in the literature. The discrepancy may be attributable to the admission policy of the RPTC in Edinburgh and to the inclusion of non-hospitalised attempts in the study.

The 'overlap' was characterised by its high content of drug addiction, alcoholism, unemployment, criminal behaviour, and previous in-patient psychiatric treatment. There was a certain degree of resemblance between this group and the 'attempted' suicides notably in the common use of drugs as a means of deliberate self-harm although the 'overlap' tended to consume barbiturates whilst the 'attempted' suicides preferred non-barbiturate drugs. On balance, however, the overlap group shared more similarities with the suicides not having histories of preceding DSH – particularly in terms of age and sex distribution, the number of widowed, separated and divorced and the high prevalence of depression at the time of the suicide.

Syndromes of suicide

People who take their own lives have generally been grouped together on the basis of that one action and in Britain the prevailing stereotype appears to be that of the elderly, isolated and depressed individual. Yet it is clearly inappropriate to regard suicides as a homogeneous population for all purposes and attempts have been

25 These inconsistencies stem largely from methodological variation and inadequacy and the difficulties of representative sampling among the 'attempted' suicide population. The latter would be particularly prominent in studies carried out at a time when suicidal behaviour was a legal offence because precautions were frequently taken to conceal all but the most serious attempts, and in those investigations relying solely on hospital based data.

made to define sub-groups. McCulloch *et al* (1967), for example, concluded from their Edinburgh study that two groups of suicides could be distinguished, one conforming to the pattern described above, and the other being associated with overcrowding, gross disruption of family life, a subculture of violence and 'attempted suicide'. Conversely, Lester's (1970) investigation in Buffalo failed to discern this second group, his results supporting rather the classical pattern described for London in Sainsbury's monograph (1955). However, both the McCulloch and Lester studies were primarily ecological, with scant information on individual cases. Seager and Flood (1965) reviewed a series of suicides in Bristol and commented on a sub-group of about one-third whose deaths occurred at the end of an extended period of psychological disability which had been frequently punctuated by 'attempts' at suicide; the remaining individuals showed greater stability with death being linked to a single and specific event.

More recently Ovenstone and Kreitman (1974) have postulated from their Edinburgh RPTC data the existence of two main groups of suicides – the 'chronically disorganised' and the 'acutely disrupted'. Among the former – which accounted for 47 per cent of the series²⁶ – psychological instability and social disruption were conspicuous in a large majority of individuals over at least the five years preceding suicide, and often much longer. At least 80 per cent had consulted their general practitioners with psychological symptoms over the last 3 months of their lives and many had experienced relatively frequent contact with psychiatrists, often as a consequence of earlier episodes of DSH.

The circumstances of the suicide were also characteristic: members of this group more commonly intimated their intention to a variety of individuals and then carried out the act in the close vicinity of others. Drug overdose was the preferred method of suicide and the authors suggested that if a case were to be argued for 'accidental suicide' as a consequence of deliberate self-poisoning or self-injury, examples would presumably be drawn primarily from this group.

The characteristics of the acutely disrupted group with no known 'attempted' suicide were in general found to be the converse of those summarised above. The comparative stability of the lives of these individuals was frequently maintained on a rather tenuous basis, such as an exclusive emotional involvement with one particular person. The death or other loss of this key figure was a dislocation to which adjustment could not be made. For others physical disability severely disrupted previously secure patterns of existence leading to suicide often as a consequence of psychiatric involvement and/or the imposition of intolerable social handicaps. The failure to adjust to changed circumstances, stem-

26 These individuals also double as the 'overlap' group described earlier.

ming for example from bereavement, appears to reflect particular personality characteristics, an observation made by Bunch *et al* in 1971 and supported by Ovenstone and Kreitman's analysis of this group which indicated that over half showed signs of personality disorder.

Spectrum of deliberate self-harm

The large and increasing numbers of individuals who deliberately harm themselves each year constitute a heterogeneous population spanning a range of severity of injury, apparent motivation, previous history and other phenomena. Consequently, attempts have been made to classify these patients into useful sub-groups according to a wide variety of key variables many of which are of course interrelated in the complex behavioural patterns demonstrated by such persons.

One approach (Paykel and Rassaby 1978) draws upon cluster analysis. Working with a population of 236 suicide attempters presenting at the main emergency service for one city in the USA the authors were able to delineate three main groups. The largest comprised patients who took overdoses, with less risk to life and a predominance of interpersonal motivations. A second smaller group was distinguished by the use of more violent methods, with higher risk to life. A third and very striking group contained recurrent attempters, with previous histories of many attempts, relatively low risk to life, and overtly hostile behaviour. Reviewing the relevant literature Paykel and Rassaby failed, however, to uncover much consistency in the results of studies adopting a similar type of analysis and concluded that cluster analytic methods present a number of difficulties and that results are likely to vary according to methodology.

A number of other studies of deliberate self-harm have confirmed that the latter is often a response to situational crises. For example Morgan *et al* (1975) found that 64 per cent of those interviewed described some major upsetting event whilst 29 per cent could not specify any particular difficulty. By far the most common cause cited (50 per cent) referred to interpersonal upset with a 'key other' person, sometimes of serious degree, such as a husband leaving home, though not infrequently a more trivial event. A sense of personal isolation was very common; 45 per cent regarded themselves as not having a close friend and 35 per cent reported a sense of personal loneliness at all times.

The importance of situational factors has also been highlighted in a study by Paykel *et al* (1975). These workers compared life events in groups of attempters, depressives and 'normals' during the six months preceding the attempt, onset of depression or interview respectively. Life events were much more common in the first two groups and while they were evenly spaced through the six months in the depressive group, they reached a peak in the last month in

the attempters group and were notably of a threatening and stressful nature. In another study Bancroft *et al* (1977) focused on the last few days to see which types of event may act as precipitants. Apart from the generally high incidence of events involving key persons, the outstanding factor was a quarrel, particularly in the last two days. Thus there appears to be a clear relationship between life events and DSH although, as O'Brien and Farmer (1980) have commented, it may be that such events should more accurately be seen as expressions of a general personal turmoil as opposed to isolated causes of self-harm episodes.

Other data further highlight the heterogeneity of the DSH population. Table 9 indicates the broad range of social problems revealed by admissions to the RPTC from the city of Edinburgh. Data on civil state in Table 10 emphasise that for both sexes the divorced have by far the highest rates of all four categories listed. Table 11 points to significant differences by social class – male class V admission rates are more than eight times greater than those for classes I and II combined although the largest proportion of male admissions originate from social class III (40 per cent in 1978). Classes IV and V come next with 26 per cent and 24 per cent respectively followed by classes I and II with 11 per cent.

Table 9 *Social problems identified in Edinburgh city admissions to the RPTC, 1978 (1975 figures in parentheses)*

	Per cent reporting problem	
	Males	Females
Overcrowding	14 (12)	12 (18)
Living alone	11 (9)	10 (6)
Criminal record	58 (58)	16 (16)
Debt	21 (17)	16 (17)
Violence used on others	34 (39)	21 (22)
Violence received from relatives	21 (19)	31 (31)
Unemployed	47 (45)	21 (18)

Source Annual Reports of the Edinburgh RPTC.

Table 10 *RPTC admission rates by civil state per 100,000 Edinburgh residents, 1978*

			Males	Females
All ages over 15	{	Divorced	1,917	1,129
		Widowed	163	155
Aged 15–34	{	Single	461	959
		Married	370	598
Aged 35+	{	Single	351	220
		Married	136	227

Source Annual Report of the Edinburgh RPTC.

Table 11 Male parasuicide in the city of Edinburgh by social class in 1978. Rates per 100,000 aged 15 years and over

Class	Admissions	Patients	First-eyers
I & II	122	106	78
III	281	211	131
IV	536	446	275
V	986	721	417

Source Annual Report of the Edinburgh RPTC.

Focusing on psychiatric considerations Morgan's (1975) studies in Bristol suggested that up to 12 per cent suffer from major functional psychotic mental illness but that reactive depression is the most common disorder, affecting 39 per cent of men and 59 per cent of women. These proportions are, however, considerably in excess of those found more recently in the city of Edinburgh where figures for 1978 indicated that almost 80 per cent of admissions were *unaffected* by psychiatric illness. In fact, only 18 and 22 per cent of males and females respectively were considered to be suffering specific psychiatric illness (not including alcoholism and personality disorders). The most frequently diagnosed condition was depression (depressive illness or depressive reaction) which was identified in 11 per cent of male and 18 per cent of female admissions. Two further points of relevance may be noted. First, the Edinburgh data suggest that psychiatric illness is being diagnosed with decreasing frequency: over the period 1968-74, on average, 28 per cent of male and 40 per cent of female admissions had been classified as depressed. Second, Newson-Smith and Hirsch (1979) have recently shown that in many cases where psychiatric illness may be recognised at the time of DSH, resolution of the disorder occurs within a week.

Alcohol plays a varying role in precipitating DSH: unpublished data for 1977 compiled by the Oxford research team indicate that alcohol was known to have been consumed by 21.5 per cent of patients at the time of the 'attempt' and by 34.7 per cent within the preceding six hours. The latter proportion disguises figures of 47.2 per cent for males and 28.1 per cent for females and an overall range of between 57.1 per cent for males aged 21-25 years and 27.6 per cent for females aged 16-20 years. (Alcoholism itself was diagnosed approximately four times as often in males (16.2 per cent) as females (3.8 per cent).)

Intended outcome of DSH is yet another variable to be taken into account: Morgan's (1975) study suggested that 46 per cent of men and 34 per cent of women wanted to die at the time of DSH, but by the next day or soon afterwards a much smaller proportion regretted not doing so (17 per cent of men and 10 per cent of women). Only a little over one-quarter in either sex expected that they

would die. In less than 10 per cent was it evident that there had been serious intention to die. Fourteen per cent warned others before the event, 44 per cent drew attention to their action soon afterwards.

It is therefore possible to describe a very general picture of DSH – that is, an impulsive act, sometimes facilitated by the effects of alcohol, having its foundation in some undesirable event which precipitates acute emotional upset in individuals not generally considered mentally ill – as well as the population's statistically most typical representative – the young female in her late teens or early twenties often with working class origins and currently living in a social environment exhibiting some degree of disturbance or deprivation. However, the use of averaged data in this way can be misleading; it encourages the concept of stereotypes which pays scant attention to the heterogeneous nature of DSH and may be of little help both in understanding the individual patient and in efforts to minimise the occurrence of the problem.

Reducing the incidence of 'suicidal behaviour'

One of the most immediate prerequisites for reducing the annual incidence of suicide and non-fatal deliberate self-harm lies in the identification of individuals at risk. However, this is a far from straightforward task. Thus on the basis of Ovenstone's (1973) 'overlap' study it may be estimated that just under one-fifth of the 4,000 suicides each year occur 'suddenly' without any consultation for psychological morbidity in the three months preceding death. And an investigation by Turner (1980) of 82 cases of DSH requiring hospital admission found that 41 per cent of patients had made no known contact with their general practitioner or the psychiatric services for help with emotional or social problems over the time of their distress. The study also indicated that in this group the action, mostly involving non-prescribed drugs, was generally a single person's response to an episode of acute distress stemming from interpersonal difficulties.

Turner found that members of this group only attended their GPs infrequently and suggested that this lack of contact and familiarity might explain why such individuals did not consider the GP to be the best source of help for their emotional problems. It may also be the case that these patients tend to perceive their general practitioner as being disapproving, unsympathetic or too busy to be able to help (Hawton and Blackstock 1976). Other explanations for the failure to seek assistance prior to DSH have been elucidated by the Edinburgh research group. In a sample of 93 first-ever DSH patients admitted to the RPTC it was found that 15 per cent were

unaware of available sources of help, a further 15 per cent considered help seeking for personal problems to be unacceptable behaviour, 19 per cent desired immediate relief from strain employing self-medication in large doses and 13 per cent either wanted to die or to influence other people. This general group of patients therefore presents major difficulties in the context of pre-episode identification and as Turner suggests their need would appear to be at the point of crisis.

Failed help seeking

From a number of independently conducted investigations it would appear that more than half of DSH patients and three-quarters of suicides (Barracough 1972a) are in medical contact shortly before their episode of self-harm or death. Although culmination in the latter events must be considered as failures of management (Kreitman 1977) they do not imply that the agencies concerned are inefficient, since no data are available on their successes. At the same time, however, it is clear that considerable potential exists for a substantial reduction in suicidal behaviour.

In Turner's (1980) study 35 per cent of the hospital admitted sample had attended their general practitioner for relief of psychiatric symptoms, prescription of psychotropic medication or for help with emotional or social difficulties over the time of their distress. And in the Edinburgh study one-third of those who knew of the existence of help giving agencies had sought assistance mainly from GPs in the two weeks before admission.

The reasons for the failure of the GPs to avert the subsequent episode of DSH are unclear. It may be that some patients when they consult their GPs are unable or reluctant to identify and discuss the causes of their distress. Unaware of where to turn next they then resort to DSH which, Turner suggests, may to some extent be interpreted as a fresh challenge to the GP to provide an appropriate answer to their problem.

Some commentators have also drawn attention to the time pressures experienced in general practice – the average length of a consultation is just six minutes (RCGP 1973) – which do not permit thorough investigation of all relevant details²⁷ and may encourage the prescription of psychotropic medicines as a ready solution. It is true that the escalation in the annual incidence of DSH has been matched by increases in psychotropic prescribing and that a large proportion of individuals who deliberately harm themselves do so with these medicines which can only be obtained on prescrip-

²⁷ However, some general practitioners have successfully overcome this problem by seeing patients with problems requiring counselling at designated times during the day (Hawton and Blackstock 1977). The latter also point out that more collaboration between GPs and other professionals such as social workers and psychiatric nurses might prove beneficial in helping to solve the problem of DSH.

tion.²⁸ However, assuming there are 100,000 hospital recorded cases of DSH each year of which 50 per cent involve persons using psychotropics *prescribed for themselves*, then over a 12 month period the average GP will prescribe such medicines for only two patients who will go on to employ them in an episode of self-harm. Even if this proportion were doubled to allow for a higher incidence of DSH and share of psychotropics therein it would do little to raise the relative significance of drug misuse in this manner given that the average GP has a list size of 2,300 patients and writes 2,000 scripts for psychotropics per annum.

Focusing on suicide, the evidence quoted in this paper indicates that approximately two-thirds of those who take their own lives suffer from depressive illness. Consequently, some commentators argue that with the development of more effective and safer antidepressant medication there is increasing scope for lowering the annual incidence of suicide. But first it is of course necessary to achieve greater success in identifying those at risk, many of whom are in fact in contact with medical agencies shortly before they die. (Furthermore it appears that up to 70 per cent of suicides communicate their ideas beforehand, often to several people and that 40 per cent state their intent unequivocally.) In this context the family doctor, even though encountering on average only one case every six years, has a potentially important preventive role to play. The GP is often the professional most familiar with individual patient histories and is in a good position to monitor significant changes in circumstances as well as sudden, risk inducing events such as bereavement and other forms of loss.

Once the potential suicides have been identified the benefits and risks of chemotherapy in each case have to be evaluated. The relief of symptoms and loss of tendency toward suicidal thought may be observed in many patients treated with antidepressants, but at the other extreme failure to recognise unsuccessful therapeutic intervention may culminate in some patients using these medicines to take their own lives. (In 1978 in England and Wales nearly 100 suicides or 2.5 per cent of the total were attributed to poisoning by either amitriptyline or imipramine). To a large extent the successful outcome of therapy is dependent upon a propitious social setting comprising in particular support from friends and relatives as well as medical and other caring agencies, but as yet this important area has received insufficient attention (Morgan 1979).

Those who repeat

The final group in Turner's (1980) study, comprising 23 per cent of the sample, were psychiatric help seekers. They resembled the

28 In the Edinburgh sample 63 per cent of those who knew of help giving services were receiving psychotropics at the time of DSH.

'chronically disorganised' group described by Ovenstone and Kreitman (1974) and repeated DSH in spite of continued intensive help from a variety of agencies. The most recently available data from the Edinburgh series indicate that in 1978 17 per cent of admissions to the RPTC were repeats within the same year.²⁹ The 'repeaters' population comprises of a broad spectrum of individuals – from those who genuinely wish to take their own lives but have not succeeded on a previous occasion to those who experience quite frequent albeit relatively innocuous DSH episodes – for whom medical and other forms of intervention would appear so far to have been unsuccessful in resolving the underlying problems which precipitate deliberate self-harm. Part of this failure may be due to certain aspects of current management procedures.

Most known cases of DSH receive some form of hospital treatment but the absence of any nationally agreed, practicable management scheme and local variations in resource availability imply the existence of considerable differences in immediate and follow-up care throughout the country. Consequently, adherence to the Department of Health's recommendation that all cases of deliberate overdosing should be referred to designated poisoning treatment centres in district general hospitals and examined by a psychiatrist is incomplete.

Once patients have received emergency care they are generally transferred from accident and emergency departments to medical wards to ensure adequate physical management and to monitor the crucial period when complications may arise.³⁰ Inpatient admission also has other advantages. It enables examination to be carried out in surroundings more suitable than a busy emergency department, at a time when the effects of the drugs have worn off and when there is scope for a systematic review of the problem and to interview relatives. Furthermore, it provides the patient with temporary respite from the setting in which the DSH occurred. On the other hand the act of admission becomes part of the drama of the parasuicide and it might be argued that this heightening effect is not always desirable and might even encourage repetition when another crisis occurs.

Another contentious issue concerns the question of whether admission should be to a special unit or to the general medical ward.

29 Among males this proportion ranges from 7.3 per cent in the 15–19 age group to 28.5 per cent for 25–34 year olds. Among females the lowest proportion (6.2 per cent) occurs at 55 years and above and the highest (20.7 per cent) in the 25–34 age range. Approximately one-half of admissions and one-third of patients have had at least one previous episode of DSH resulting in hospital admission (anywhere).

30 Some patients discharge themselves or are sent home from accident departments without further assessment. In Bristol, Morgan (1979) found this proportion to be about 12 per cent. These patients differed from the majority in that they were mostly young females who had lacerated themselves.

Contravening the recommendations of the Hill Report (1968) and reflecting in part at least resource inadequacies, the latter is more commonly the case. (Morgan (1979) has estimated that DSH patients now comprise about 20 per cent of all acute medical admissions to hospitals in the UK.) Yet on the basis of experience at the Edinburgh RPTC Kreitman (1980) has argued that a specialist centre provides the best option. Perhaps most significantly, it generates a 'ward culture' of acceptance – an extremely important aspect of the problem given the apparently unfavourable attitudes of general ward staff to the DSH patient documented by a number of workers.³¹ Second, it enables the receiving hospital to organise special toxicological skills and equipment and interested physicians to develop experience in toxicology. A poisoning centre may also provide a valuable undergraduate teaching base because of the need to give equal attention to the somatic, psychological and social facets of parasuicidal patients' problems.

Countering the second of these arguments, Barraclough (1980) has pointed out that district general hospitals already possess the skills necessary for the management of self-poisoning in their intensive care units. Furthermore, Morgan (1979) has emphasised that if DSH patients are to be treated separately from the mainstream of general medicine it is important to ensure that the unit does not carry a stigma, either from the point of view of patients or staff. Staff morale therefore needs to be maintained at a high level so that the unit is recognised as a sought-after training experience rather than one to be avoided. The development of such a facility might present problems from financial, staffing and other points of view, and any compromise is likely to accentuate rather than alleviate the problems of DSH management. Morgan also argues that there are in fact certain advantages to the present system of management in the general medical ward. For example, it ensures an extended participation in the caring process and the DSH patient is not dismissed as someone else's psychiatric problem.

Once the physical state is judged to present no significant danger and the patient is conscious and able to reconstruct events, a formal evaluation of the factors leading to the episode of DSH is carried out with a view to identifying an appropriate management programme. However, there has been growing concern about the working of official policy in this area which recommends that all DSH patients should be assessed before leaving hospital and that

³¹ Patel's (1975) Glasgow study detected unfavourable attitudes in 25 per cent of consultants, 44 per cent of junior medical staff, and 40 per cent of nurses, the majority feeling that DSH patients were unsatisfactory to treat. Ramon and her colleagues (1975) in Oxford found that nurses demonstrated sympathy towards DSH, tending to interpret it as an escape from or manifestation of distress but doctors inclined to see DSH as either suicidal, in which case they were sympathetic, or manipulative, in which case they expressed criticism.

the key responsibility for this task rests with the psychiatrist. Hawton *et al* (1979) suggest that the principal reason has been the steep rise in the incidence of DSH. The latter has imposed increasing demands on psychiatrists' time and patients have been detained in much-needed medical beds for psychiatric assessment that has sometimes had to be only cursory. These workers also point out that the proportion of patients indulging in DSH who are suffering from psychiatric illness appears to have been decreasing. Against this background the results of several recent studies have suggested that other professionals – physicians, nurses and social workers – are equally competent to undertake the function of assessment although it has been emphasised that however provision is organised, adequate psychiatric back-up must always be available (Black and Pond 1980).

Focusing on post-assessment management strategies, data from the Edinburgh RPTC indicate that in 1978 no further action (other than routine communication with GPs) was recommended for 52 per cent of male and 45 per cent of female admissions. Ten per cent and 17 per cent of male and female admissions respectively required inpatient psychiatric care and a further 11 per cent and 22 per cent were given social work assistance. The most frequently adopted course of action was the provision of outpatient psychiatric care (30 per cent of male and 23 per cent of female).

Unfortunately, and with important implications for repeated episodes of DSH and in some cases eventual suicide, a high drop-out rate is associated with the latter strategy: surveys indicate that approximately half the patients fail to keep their first appointments (Kreitman 1977, Blake and Mitchell 1978). This phenomenon has been attributed *inter alia* to the stigma attaching to attendance at a psychiatric outpatient clinic and the fact that patients prefer to be seen by the same psychiatrist at the clinic as during the stay in hospital but this is not always the case (Newson-Smith 1980).

As a potential solution to this problem Hawton (1980a) has investigated the feasibility of domiciliary treatment in place of outpatient attendance. There was evidence that patients who completed treatment in the outpatient group were in fact better off at follow-up than those completing in the domiciliary group. Since the outpatients had to make much greater effort to receive treatment than those offered home-based care it may be that those who kept outpatient appointments were more highly motivated. It was concluded that it would be inappropriate to propose a revision of normal outpatient treatment policy, especially as domiciliary treatment is more expensive both in terms of therapists' time and travelling. (Kreitman (1977) too has described an intensive outpatient scheme, involving immediate domiciliary follow-up of individuals who failed to keep their outpatient appointments and collaboration with the Samaritan organisation, which failed to reduce the repetition rate of non-fatal deliberate self-harm.)

Non-medical approaches

A large number of advisory agencies, for example the Marriage Guidance Council and those designed for specific groups such as students, make important direct and indirect contributions to helping suicidal individuals. The best-known organisation with a particular concern for these people is the Samaritans. However, whilst their role in suicide prevention has been studied extensively, little is known about the organisation's influence with regard to non-fatal acts of deliberate self-poisoning or injury. In providing a nationwide, 24-hour emergency service for the distressed and suicidal the Samaritans would seem to be ideally placed to make an important contribution to the primary prevention of DSH. Yet the expansion of the Samaritans has occurred alongside the steady increase in the incidence of DSH. These apparently conflicting trends have been the subject of a number of investigations.

A study by Greer and Anderson (1979) found that only 1.4 per cent of DSH patients had sought help from the Samaritans immediately before their act of self-harm, although a further 13 per cent had been in contact on a previous occasion. The authors were unable to attribute this large-scale failure to use the service to factual ignorance of the latter's existence: they found that 72 per cent of patients knew of the Samaritans and how to contact them. (This figure is considerably higher than those reported in earlier surveys. In 1969 only 14 per cent of parasuicides admitted to King's College Hospital and 31 per cent of those admitted to the Edinburgh RPTC were similarly informed about Samaritans (Bagley 1970; Kreitman and Chowdhury 1973). Since 1969, the Samaritans have gained publicity by means of a television drama series in 1972 (*The Befrienders*) and more recently by posters and other advertisements.)

Examining the principal reasons for the failure to make contact with the Samaritans immediately before DSH Greer and Anderson (1979) found that 20 per cent simply 'did not think of it' before overdosing. Consequently it was suggested that more extensive Samaritan publicity could influence a proportion of such individuals to seek help instead of resorting to DSH.

Another 20 per cent did not make contact because they wanted temporary oblivion in order to obtain immediate relief from emotional distress. Their action was directed entirely towards their current feeling states rather than any objective solution to their problems. For this reason, it seems highly unlikely that this group could be persuaded to contact the Samaritans. Similarly the 7 per cent whose parasuicidal acts were designed to influence key persons in their environment.

It is not clear whether greater publicity might have been beneficial with respect to the patients in the remaining categories. It is unfortunate that among those who did not make contact because they felt that the Samaritans could not help them, nearly half

based their opinion on a previous personal experience with the organisation. In many of these cases, however, the patients had quite unrealistic expectations. On the other hand, it is conceivable that some of the patients who regarded their problems as too personal to take to the Samaritans could be persuaded to do so. The potential value of additional publicity is thus equivocal and it may further be noted that although *The Befrienders* television series was followed by a marked increase in new Samaritan clients in Edinburgh there was no corresponding reduction in the number of parasuicidal patients admitted to hospital (Holding 1975).

Availability of means

A number of commentators have argued that the availability and lethality of a specific means of self-destruction may affect the overall incidence of suicide rather than just the proportion of deaths attributable to that particular method (Farmer 1979, Low *et al* 1981). The declining suicide rate in England and Wales in the 1960s and the contemporaneous detoxification of domestic gas supplies may be interpreted as support for the hypothesis. The possibility of causal relationships of this nature has, however, been recognised for a long time. In 1863 William Farr wrote in the Registrar General's annual review of mortality: 'In certain states the mind appears to be fascinated by the presence of a fatal instrument, such, for example, as prussic acid, a pistol, a rope or razor; and the withdrawal of the means of death suffices to save life. Diminish the facilities of procuring poison and you diminish the peculiar kind of suicide.'

Today, poisoning with drugs, alone or in combination or with alcohol, accounts for the vast majority of episodes of DSH and 38 per cent of completed suicides (Table 12). In a large proportion of cases the medicines employed are obtainable only on prescription. Moreover the DSH 'epidemic' reflects closely recent trends in prescribing in terms of both volume and type of drug involved: for example according to data from the Hospital Inpatient Enquiry (Table 6) the relative significance of psychotherapeutics in admissions for adverse reactions to medical agents more than doubled between 1968 and 1977 (to 30 per cent) while over the same period the number of scripts written for sedatives, tranquillisers and anti-depressants increased by 40 per cent. Consequently, some commentators have argued that greater circumspection in GP prescribing might help to halt or even reverse the growth in the numbers who deliberately consume overdoses of medicines.

However, this contention ignores a number of important considerations. First, the drugs employed by a particular person in an episode of self-poisoning may not have been prescribed for his or her use. Jones (1977) found that one-third of his sample had taken an overdose of medicine which had been prescribed for a friend or

Table 12 *Suicide by poisoning: analysis by nature of substance employed, by sex, England and Wales 1978*

	Males		Females	
	No of deaths	% of total	No of deaths	% of total
Analgesics and Antipyretics	181	17.2	256	26.2
Barbiturates	138	13.1	277	28.3
Psychotherapeutics	89	8.4	143	14.6
Other specified and unspecified drugs including some in specified combinations	144	13.6	198	20.2
Alcohol in combination with specified medical agents	56	5.3	45	4.6
Toxic effect of carbon monoxide	365	34.6	37	3.8
Toxic effect of substances chiefly non-medical as to source	82	7.8	22	2.2
	1055	100	978	100
Poisoning as per cent of all suicides	43.3		61.7	

Source Registrar General.

relative. Second, Table 6 and a number of independent surveys indicate that in a significant proportion of DSH episodes drugs readily obtained without a prescription are used – Hospital Inpatient Enquiry figures suggest that in recent times analgesics and antipyretics have consistently accounted for about one-quarter of DSH episodes.³²

Focusing on this second point, Gazzard and his colleagues (1976) have discussed some of the practical implications of restricting the availability of an analgesic such as paracetamol and many of these considerations have at the same time a more general relevance. Making the drug obtainable on prescription only would certainly limit its availability, but it would only be logical to do this if similar measures were taken for salicylates. Otherwise it might serve only to increase the number of people taking aspirin overdoses, in whom there is a higher overall mortality rate than in those taking paracetamol. Placing both groups of drugs on prescription would add unnecessarily the treatment of many mildly painful conditions

³² Completed suicide data show an increase in proportion from 6.8 per cent to 10.9 per cent between 1974 and 1978 for analgesic compounds.

to the GP workload and might also raise NHS costs.³³ Finally, the authors suggested that restricting the availability of relatively mild analgesics might divert some patients into taking overdoses of medicines with a higher lethality.

In contrast to the general theme of the discussion above, modified GP prescribing habits do appear to have influenced trends in self-poisoning with barbiturates. The reduction in the number of scripts issued in England from 14.2 million in 1968 to 5.1 million in 1978 has been the major factor in the halving of the relative importance of sedatives and hypnotics in (hospital measured) DSH. In addition barbiturates used alone were responsible for 10 per cent of completed suicides in 1978 compared to 22 per cent in 1974 – a 52 per cent drop in just 4 years. However, it is more difficult to discern the impact these particular developments might have had on the overall incidence rates of either DSH or suicide during the time periods in question.

The significance of the 'availability of means', especially medicines, as a causal factor in suicide and DSH has been debated extensively, raising many questions but providing few definite answers. Consideration has ranged inconclusively over such areas as the potential benefits of pack size limitation, the restriction of sources of retail outlet in the case of drugs not requiring a prescription, the incorporation of emetics into frequently abused medicines, individual strip and blister packaging of pharmaceutical preparations in addition to the influence of GP prescribing habits. In the midst of this confusion it is important to ensure that the problem continues to be seen in its proper context. – that is against not only the relatively vast population which derives therapeutic benefit from the medicines a very small minority use inappropriately (for example the more powerful analgesics) but also in terms of the unknown numbers of patients who, in the absence of psychotropic therapy, might otherwise have recourse to DSH or suicide.

The effect of publicity

Imitative episodes of self-destruction appear to occur after any particularly striking and widely publicised death by suicide. Goethe's (1749–1832) novel *The Sorrows of the Young Werther* was banned in many European countries because fashionable and romantic young men were supposed to be following the hero's example and shooting themselves. In 1839 the Fish Street Monument in London

33 Moreover, restricting a medicine to prescription only status does not of course ensure that it will no longer be used inappropriately. For example after the Pharmacy and Poisons Act (1933) barbiturates were available only on prescription from a registered medical practitioner, but were prescribed widely as hypnotics and sedatives and there followed a steady increase in accidental and suicidal barbiturate deaths (Hughes *et al* 1980).

became a popular object of pilgrimage for would-be suicides after a Miss Moyes jumped from it. Suicide fashions have also involved the Clifton Suspension Bridge at Bristol, the Golden Gate Bridge, San Francisco and the Kegon Waterfall near Tokyo.

The role of publicity in suicide is unclear although it has been the subject of debate for many years. In 1839 William Farr commented in the report of the Registrar General: 'Some plan for discontinuing, by common consent, the detailed dramatic tales of suicide, murder and bloodshed in the newspapers is well worthy of the attention of their editors. No fact is better established in science than that suicide (and murder may perhaps be added) is often committed from imitation. A single paragraph may suggest suicide to 20 persons; some particular, chance, but apt expression, seizes the imagination, and the disposition to repeat the act, in a moment of morbid excitement, proves irresistible.'

Evidence obtained in recent years lends some support to the possibility of a connection between the two variables. Phillips (1974) showed that the numbers of people taking their own lives increased immediately after a suicide had been publicised in newspapers in both Britain and the United States during the period 1947-68 and that the more publicity devoted to the story the greater the rise in subsequent suicides. Barraclough and his colleagues (1977a) demonstrated a statistically significant association between reports on suicide inquests in a local newspaper and subsequent suicide in men under 45 years of age. And Surtees *et al* (1976), investigating suicides at Beachy Head, have pointed out that these events have tended to occur in clusters suggesting that the publicity which the deaths attracted was the trigger for some individuals intent on suicide to come to this particular spot. The authors also noted that a newspaper report of a Beachy Head death would be unlikely to suggest suicide to a person who had not contemplated self-destruction, but might influence the method of choice to someone who had decided on that course of action.

The role of publicity thus appears to be twofold; it may highlight successful means of suicide and it may precipitate incipient suicides which might otherwise have been prevented had sufficient time elapsed for contact to be made with medical and other caring agencies. Against this background Seager (1979) has suggested that newspapers should conduct some sort of experiment, involving a suppression of reporting of suicide cases over an extended period, to find out whether or not publicity does lead to more suicides. Whilst it is unlikely that such a proposal would achieve universal approval there does appear to be a greater consensus in favour of a reduction in the degree of sensationalism observed in the reporting of suicide cases (Shepherd and Barraclough 1978). Such a move, if not actually affecting the number of suicides, might at least serve to minimise the distress to bereaved relatives from this source.

Conclusion

Suicide and deliberate self-harm give rise to significant economic and social costs. For example, the consumption of hospital resources (including use of the ambulance services, treatment in accident and emergency departments, inpatient care and subsequent outpatient attendance) by the 92,000 'adult' admissions for adverse reactions to medicines in 1977 would have incurred an expenditure of between £15 and £20 million at mid-1980 prices. This is equivalent to a cost of approximately £200 per case. It should be stressed that this is an average figure – individuals who repeatedly harm themselves deliberately and serious cases requiring prolonged treatment in intensive units,³⁴ may be responsible for expenditures considerably in excess of the average *per capita* estimate.

Other medical and non-medical costs that might be saved by a reduction in the incidence of suicidal behaviour are even less susceptible to accurate assessment. Focusing on the family practitioner service, the Second National Survey of Morbidity in General Practice suggests that adverse reactions to drugs are responsible for 0.1 per cent of consultations (giving rise to a cost of less than £0.5 million in England and Wales in 1978) but once again the division between genuine accidents and DSH is unclear. This last point is also relevant in the context of the resources absorbed by special poisoning treatment centres and information bureaux. The amount of time that psychiatrists and paramedical workers have to allocate to cases of DSH at the expense of other patient groups is an important opportunity cost which cannot readily be converted to monetary or other terms. Finally, suicidal behaviour obviously leads to both permanent and temporary reductions in the labour force although it seems probable that isolated episodes will have only a negligible if indeed any economically damaging effect given the social and age profiles of the suicide and DSH populations as well as the current period of industrial recession.³⁵

An overall assessment of the social sequelae of suicide and DSH is inevitably confounded by the widely differing backgrounds and responses to such behaviour. Focusing, for example, on the needs of individuals bereaved by the suicide of their spouse Shepherd and Barraclough (1979) found that whilst comfort and practical

34 Morgan (1979) has estimated that approximately 4 per cent of DSH admissions require intensive care.

35 For specific individuals and their families, however, the economic implications of suicide or DSH may be highly significant. For example, Barraclough and Shepherd reported in 1977 that 52 out of 100 life insurance companies incorporated in their policies suicide exclusion clauses with varying time restrictions. As far as repayment commitments were concerned 12 companies undertook to refund the premiums paid or the surrender value of the policy, three indicated that payment would be less than the full amount, and one stated that all premiums would be forfeited; the remaining 36 indicated that the policy was voided.

help were sought by most of their sample (25 of 31 widowed spouses) other requirements were expressed with varying degrees of frequency – advice and information (44 per cent), religious counselling (35 per cent), financial assistance (16 per cent) – and in some instances showed important differences by sex.

Suicide might also be expected to have potentially damaging effects on surviving relatives in view of the atypical circumstances and implications of such fatalities including, for example, their sudden and occasionally violent nature, the legal inquiry and varying degrees of perceived moral disapproval. However, the findings of a study of 44 widowed spouses by Shepherd and Barraclough (1974) do not wholly support this conjecture. It was shown that bereavement through suicide is accompanied by shock and distress but the worst effects that might be expected, that is, increased mortality, psychiatric ill health, social criticism and social dysfunction were not observed. Remarriage and mortality experience did not differ significantly from that shown by the widowed of comparable age in the general population. The inquest, thought upsetting, was accepted as an unavoidable necessity. Only a minority felt stigmatised. Outcome was evenly divided between better and worse and reflected two main elements: the degree of adjustment to a new life and relief from the burden caused by the suicide's mental disorder. On the other hand, the same authors have reported elsewhere (Shepherd and Barraclough 1976) that the effect on children of the suicide of a parent may be more severe, noting in particular a raised tendency to emotional disturbance.

Focusing on the more quantifiable economic costs attention has mainly been directed at the consumption of scarce resources implicit in the steady increase in the annual incidence of deliberate self-harm. Throughout the 1960s and first half of the 1970s the number of hospital admissions for adverse reactions to medicines grew at an average rate of 10 per cent per annum and Jones (1977) has predicted that the continuation of such trends will mean that by 1984 adults who have poisoned themselves will occupy all available emergency beds. In view of these pressures efforts have increasingly been made to devise and evaluate effective preventive strategies. Yet the available evidence indicates that their effect, until 1977 at least, has been strictly limited.

The present review suggests that a certain proportion of 'suicidal behaviour' probably has to be regarded as unavoidable. Perhaps 20 per cent of individuals who commit suicide and 40 per cent of those who deliberately take a non-fatal overdose do so without giving prior warning of their intentions to friends and relatives or to medical and other caring agencies and are therefore least susceptible to preventive efforts. More often, however, 'suicidal behaviour' is foreshadowed by consultations with general practitioners. In this context it has been argued that more successful GP identification of individuals carrying the risk factors outlined

in this paper, an increased involvement of other primary care professionals and a greater willingness on the part of the patients themselves to discuss the causes of their distress might play an important part in reducing the annual incidence of DSH and suicide.

Of the annual number of hospital admissions for DSH approaching 20 per cent are repeat episodes occurring in that same year. It is in this area that significant potential for preventive action might therefore be expected to exist. At the beginning of the 1970s Greer and Bagley (1971) and Kennedy (1972) suggested that psychiatric assessment or treatment had a beneficial effect on repetition. However, subsequent studies coupled with a re-evaluation of the extent to which psychiatric illness is involved in DSH have raised doubts about the efficacy of such intervention. Currently the consensus view is that DSH is usually an impulsive response to an intolerable social situation, often involving other key people and persistent social and relationship difficulties.

Against this background Gibbons and his colleagues (1978a) have undertaken an investigation of the value of providing a special social work service for a sample of DSH patients seen in a hospital casualty department. The service was crisis oriented, explicitly time-limited and directed wherever possible at the patient in the context of his close relationships in the home environment. The study findings indicated, however, that such an approach did not offer any advantages over routine follow-up measures in decreasing the incidence of repeat episodes of DSH. The authors concluded, like many others, that the means of reducing the extent of such repetition remain unknown.

More optimistically it may finally be recorded that recent data hint at the possibility that the incidence of DSH may now be flattening out or perhaps even falling. The number of admissions to the Edinburgh Regional Poisoning Treatment Centre in 1978 was 12 per cent less than the previous year's figure which in turn was 2 per cent below that recorded in 1976. Similarly during the two years 1978-79 the incidence of 'attempters' referred to the general hospital in Oxford declined by 16.2 per cent (Hawton 1980).

In contrast, however, the number of completed suicides has started to rise. Provisional estimates for 1979 show 500 extra suicides per annum compared to 1975; over this five year period there was an average annual increase in the numbers of individuals taking their own lives of 3.2 per cent. Why such trend reversals in both DSH and suicide should have occurred and whether or not they represent only temporary interruptions to otherwise well-established incidence patterns are unclear. In conjunction with many other unresolved questions these recent developments indicate the need for further investigations into 'suicidal behaviour' and in this context the setting-up of a Medical Research Council working party on parasuicide (MRC 1980) to encourage research is to be welcomed.

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