

A Survey of Suicidal Behaviour in the Mid-Essex Area in 1972

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Although the incidence of completed suicide in the United Kingdom has fallen in the last 10 years (Barracrough, 1972; Malleston, 1973), the incidence of 'self-injury' (i.e. 'attempted suicide', 'parasuicide') has risen steeply (Kessel, 1966; Smith and Davison, 1971; Patel *et al.*, 1972; Smith, 1972; Lawson and Mitchell, 1972) creating a major medical problem in social and economic terms.

It has been recommended authoritatively that all such patients should receive psychiatric assessment and treatment, preferably before discharge from the ward (Kessel, 1965; Matthew *et al.*, 1969), and there is some evidence that this may be effective in reducing subsequent suicidal behaviour (Greer and Bagley, 1971; Kennedy, 1972) if given in the acute episode. Most of the published work is, as expected, from specialised centres (Regional Poisoning Treatment Centres) with integral psychiatric care.

In this paper, the term 'suicidal behaviour' is used to include both 'self-injury' and 'completed suicide'.

The Chelmsford Hospital Group functions as a District General Hospital, but is without a psychiatric unit. Psychiatric advice and hospital beds are available from another hospital group 18 miles away. Nevertheless, admissions from acute poisoning form a large proportion of medical admissions and are admitted to the acute general medical wards. In view of this departure from the ideal, it was felt desirable to conduct a retrospective survey of all cases of self-injury and to compare them with the coincident cases of completed suicide occurring in the same area.

The hospital group serves a population of about 300,000 located mainly in five centres: Chelmsford, Braintree, Brentwood, Maldon and Witham. The intervening countryside is rural. Although a considerable proportion of the population commutes to London, there is much local light industry, but no heavy industry.

The number of students or elderly is not above average. The area is thus typical of much of southern England.

With the exception of the eastern (coastal) boundary, where the natural barriers of the Blackwater and Crouch estuaries create a relatively isolated community, the hospital catchment area overlaps considerably with that of adjacent hospital groups.

The definition of Jacobson and Tribe (1972) was used for this survey, i.e. 'self-injury' was considered to be 'the deliberate self-infliction of injury or poisoning, with the intention of causing death or risking death, or degrees of harm, or in order to give an impression of such intention'.

METHOD

The hospital notes of all adult patients seen at the hospital for suicidal behaviour in the calendar year 1972 were examined, whether or not they were subsequently admitted. Where a patient had been seen more than once for suicidal behaviour during the year, the first occasion only was included. Initially, the H.A.A. coding system was used to trace patients, but it became apparent that substantial numbers had been missed by this method. The Casualty Department record books for the year were then examined, as the vast majority of patients were known to have been admitted via Casualty. Together these methods yielded a total of 177 patients.

Patients were excluded if thought to be intoxicated with alcohol alone. All other cases of excessive consumption of drugs were included, no matter how trivial the amount involved.

Questionnaires were sent to the general practitioners of these patients, enquiring about subsequent attempts, rehabilitation and present psychiatric treatment. Where necessary, efforts were made to identify and discover the doctors of patients who had changed GPs. Follow-up information was supplemented in many cases by reference to the hospital notes.

Two cases of completed suicide were identified by the above method. Other cases were identified by a search of the hospital autopsy register and the Coroner's records.

Population figures were taken from the 1971 census figures. Statistical analysis was by use of the χ^2 test with Yates correction. A level of $p < 0.05$ was taken as indicating statistical significance.

RESULTS

A total of 177 patients was admitted to hospital for suicidal behaviour in 1972. There were 19 cases of completed suicide, two of whom died in hospital, one as a result of physical trauma and one following the ingestion of a number of drugs including tricyclics and Mandrax. Both are included in the hospital (self-injury) group. The ratio of self-injury : completed suicide was 9.3 : 1.

Table 1

Age Groups	Total population (1971 census)	Patients	Incidence/1,000
15-24 yrs	41,030	58	1.41
25-34	42,240	58	1.37
35-44	36,875	32	0.87
45-54	35,540	17	0.48
55-64	30,917	1	0.03
65 and over	34,540	8	0.23
		174	

There was a predominance of females in all age groups of those admitted to hospital with totals of 37 (21 per cent) males and 140 (79 per cent) females (ratio 0.26 : 1). There was no significant difference between the sex ratios in each age group. Two-thirds were under 35 years old. This high proportion of young adults is not entirely due to bias in the local population (*see* Table 1).

Only 10 of the 80 married patients were male, and this is significantly fewer than expected ($p < 0.025$). Fifty-nine patients were single, including 16 men. Twenty-two were living permanently apart from their spouses, and of these, 9 were men.

Of the total of 19 cases of completed suicide, 11 were men and 8 were women (ratio 1.38 : 1) in marked contrast to the self-injury group.

The age distribution of the completed suicide group shows a gradually increasing incidence with age, with the male peak over 55 years, and the female peak a decade earlier. This contrasts markedly with that of the attempted suicides.

The occupation of patients covered a wide range. The largest groups were housewives, reflecting the preponderance of women in the series, and manual workers, reflecting their preponderance in the population.

The incidence of self-injury in the urban areas of Chelmsford was 0.99 per 1,000, whereas in the surrounding rural district the incidence was 0.59 per 1,000. This was in an area where little loss of cases to adjacent hospitals was expected.

Forty-five of the self-injury patients (25 per cent) gave a history of at least one previous attempt. Fifty-eight patients (33 per cent) had previously been seen by a psychiatrist, including 25 (14 per cent) still receiving psychiatric care at the time of the episode.

In contrast, only 2 of the completed suicides had a history of previous suicidal activity, and 5 had a history of psychiatric treatment; 3 of these were currently receiving psychiatric care.

Information concerning the time of the attempt was scanty and unreliable and was not analysed. Nearly 70 per cent of the total were seen at the hospital in the second half of the day, and many shortly after midnight. It is unlikely that many

patients were seen more than six hours after the attempt, and it may be that most attempts are made in the afternoon and evening period.

There was no significant variation in the number of attempted suicides from day to day but most (11/19) of the completed suicides occurred at the weekend (Friday to Sunday). There was no significant seasonal variation in either group.

Of the self-injury group 93 patients (53 per cent) explained their action by reference to a crisis in interpersonal relationships, usually with the spouse or boyfriend, 12 (7 per cent) were due to the strain of a physical ailment, and 11 (6 per cent) were due to a variety of problems in their material circumstances, e.g. housing, money. There was no significant sex difference between the groups. Precipitating factors were less often identified in men.

In about a third (7/19) of the completed suicides, the precipitating factor was obscure, no doubt due to the inadequate sources available. In 7 others it could be related to organic disease, and in 4 it was related to a breakdown in interpersonal relationships.

METHODS INVOLVED

Over a half (10/19) of the completed suicides used physical methods (hanging, drowning, slashing, etc.) compared with only 4 (2.3 per cent) of the self-injury group, who characteristically used drugs alone.

The benzodiazepines were the commonest group of drugs, being incriminated in 58 (33 per cent) (Table 2). No overall trend is apparent in the ages of those taking each drug, except for a steady increase with age of those taking benzodiazepines, falling off after 65 years.

Table 2. Drugs Involved

	No. of patients
Benzodiazepines	58
Salicylates	43
Antidepressants	36
Barbiturates	31
Alcohol	19
Mandrax	8
Paracetamol	5
Carbon monoxide	4
Physical trauma	5
Other drugs	45

In contrast, of the successful suicides, involving the use of drugs, 5 cases involved the use of barbiturates, 3 cases used Mandrax and one a tricyclic preparation.

DIAGNOSIS OF UNDERLYING DISORDER

This was attempted for the 'self-injury' group only.

Seventy-three (43 per cent) patients were depressed; 23 (13 per cent) were thought to have a personality disorder, and in 32 (18 per cent) the episode was attributed to an acute crisis in a basically sound personality. It proved impossible to make a meaningful retrospective assessment of premeditation/impulsiveness in most.

Although these diagnostic categories are unsatisfactorily vague, greater precision was not possible.

HOSPITAL MANAGEMENT

One hundred and fifty-five patients (88 per cent) were admitted to this hospital group, 2 were admitted elsewhere and 20 patients were discharged from the Casualty Department, which in 7 cases was against medical advice.

In 39 per cent short-term observation only was required. The remainder required some form of active physical treatment (Table 3).

Table 3. Hospital Management

Observation only	59	(39%)
Gastric lavage	70	(46%)
Intravenous infusion	17	(11%)
Forced alkaline diuresis	10	(6%)
ECG monitor	3	
Endotracheal tube	1	
Mechanical ventilation	1	

In only 77 patients (43 per cent of those admitted) was a psychiatric opinion sought; in half of these the psychiatrist visited the patient in the ward and a further 9 patients were transferred directly to the psychiatric unit. The remaining 24 were given an appointment to the psychiatric clinic at some time after their discharge from the ward. Of the 33 patients seen in the ward, 5 were seen within 24 hours of admission, and about half were seen during the first 3 days.

Impairment of consciousness led to increased referral of patients by the physician in charge. Of 93 patients classed as alert when first seen, 33 were referred to a psychiatrist, whereas of 79 patients with impaired consciousness (including coma) 41 were referred. This difference is significant ($p < 0.05$).

Thirty per cent of those admitted were discharged within 24 hours and over 60 per cent had left hospital by three days. Almost 10 per cent stayed for more than a week.

One hundred and two (66 per cent) were discharged from hospital to the care of their general practitioner alone; 21 (14 per cent) were transferred elsewhere,

usually to a psychiatric unit. Arrangements were made for the remaining 20 per cent to attend either medical or psychiatric outpatients.

As stated above, there were two hospital deaths.

FOLLOW-UP INFORMATION

Disappointingly, follow-up information could not be obtained in 37 (21 per cent) of the total of 175 survivors. Of these, 12 had moved elsewhere and attempts to trace their general practitioner or extract information from him were unsuccessful. Many had not had occasion to see the patient since the episode.

Twenty-six (19 per cent) of these patients had made subsequent attempts at the time of the review. These attempts became less common after the first year. Ten made more than one attempt.

Thus, there were at least 43 known subsequent attempts, in 26 patients, three of which were fatal. Only about one-third (7/20) used the same drug in both attempts.

Ninety-six (70 per cent) of the 138 patients followed-up were rehabilitated sufficiently to be able to cope with the demands of their normal life, i.e. housework, schoolwork, providing for the family, perhaps with the aid of a tranquilliser or antidepressant.

Of the 126 for whom information was available, 39 (31 per cent) were receiving psychiatric treatment, either from a psychiatric clinic (11 patients) or from their general practitioner (28 patients).

ASSESSMENT OF POSSIBLE PROGNOSTIC INDICATORS

Over 80 per cent of the followed-up patients made no subsequent suicidal gesture ('non-repeaters'). These were compared with the minority with documented subsequent attempts ('repeaters').

Although more common in males aged 25 to 34 years and females aged 45 to 55 years, and in those married compared to the single, the differences were not significant.

In this series, a 'repeater' refers only to those patients who made an attempt subsequent to their 1972 admission. The number of such repeaters was significantly higher among those who had also made an attempt before 1972 (35 patients) compared to the remainder ($p < 0.005$).

Of the 22 patients who had previously received psychiatric treatment, 6 were repeaters, a significantly higher proportion than the 7 repeaters among the remaining 75 patients ($p < 0.05$). As psychiatric treatment may have been demanded by previous suicidal behaviour, patients with such a past history were excluded from this analysis.

The precipitating event was of little prognostic value. None of those with physical disease or financial problems repeated, but the numbers are small. Of 41

patients without recorded precipitating factors, 14 were repeaters, which is a significant excess ($p < 0.01$).

The diagnosis of the underlying disorder was probably influenced by observer bias, as psychiatric diagnoses were rarely recorded, even when the patient had been seen by a psychiatrist. In any event, the diagnosis seems to be of little significance in regard to repetition, with the exceptions that an 'acute crisis' was less likely to repeat ($p < 0.025$) and a 'personality disorder' was more likely to do so ($p < 0.005$) when compared with the rest. However, allocation to these categories may have been influenced by knowledge of repetition.

Gastric lavage on admission was associated with a decreased incidence of repetition, when compared to those merely observed, but not significantly so.

Impairment of consciousness (Table 4) was a good prognostic indicator. With an increasing degree of impairment of consciousness, the incidence of repetition increased ($p < 0.01$). However, severity of poisoning as judged by duration of admission was of no value in assessing the likelihood of recurrence.

Table 4. Impairment of consciousness on admission related to subsequent attempt.

	$\chi^2 = 9.43$ $N = 2$ $p < 0.01$			
	Alert	Drowsy	Coma	Total
Non-repeaters	60	39	9	108
Repeaters	8	7	8	23
Totals	68	46	17	131
'Excess incidence' of repeaters	-3.9	-1.1	+5.0	

Those taking tricyclics or benzodiazepines were more likely to repeat than those taking barbiturates or salicylates ($p < 0.05$). Similarly, there were more repeaters among those taking more than one drug.

Although there are excessive repeaters among those referred to the psychiatrist, this does not reach statistical significance. When broken down to include the place where first seen by the psychiatrist, a significant difference emerges, with the highest proportion of repeaters in the group seen first in the outpatient department ($p < 0.01$). There were relatively more repeaters in those discharging themselves against advice. The difference was not significant.

DISCUSSION

Episodes of self-poisoning and self-injury account for a considerable proportion of the medical workload in most hospitals. In this group, it accounted for 7 per cent of 2,200 medical admissions in 1972, and 9.6 per cent of urgent medical admissions. This is similar to previous estimates of 7-19 per cent of acute medical admissions (Matthew *et al.*, 1969; Smith and Davison, 1971; Lawson and Mitchell,

1972). It was the third most common cause of admission following myocardial infarction (11 per cent) and cerebrovascular disease (8 per cent).

The ratio of self-injury : completed suicide in this survey is very similar to that reported by Parkin and Stengel (1965) of 9.7 : 1.

The predominance of women among our self-poisoners is of a higher order than previous reports (Tulloch, 1972; Ovenstone, 1973; Bean, 1974). The reason for this is obscure. It is possible, but unlikely, that the method of tracing patients overlooked cases of self-injury by physical trauma, which occurs more often in the male.

The male/female ratio in the group of suicides is similar to previous reports e.g. 1.12 : 1 (Ovenstone, 1973).

Many surveys have shown most attempts at self-injury in the 15 to 35 age group (Kessel, 1965; Evans, 1967; Aitken *et al.*, 1969; Smith and Davison 1971; Jackson and Tribe, 1972; Ovenstone, 1973; Bean, 1974) but the present report shows an even greater proportion in the younger ages, similar to the situation reported in Sheffield (Smith, 1972), and may reflect the tendency for the annual growth in the incidence of self-poisoning to occur particularly in this age group (Aitken *et al.*, 1969). The marked age difference in the suicide group is well documented (Jacobson and Jacobson, 1972; Ovenstone, 1973).

Previous reports have noted the higher incidence in urban compared to rural areas (Evans, 1967; Jacobson and Tribe, 1972; Tulloch, 1972). This data confirms that trend, but cannot be conclusive as it is not known to what extent general practitioners have treated patients at home, or to what extent suicidal episodes remain unreported. There may be a greater tendency for these factors to operate in rural areas.

Previous attempts are frequently recorded, although the proportions vary substantially between populations (Kessel and McCulloch, 1966; Smith and Davison, 1971; Smith, 1972; Jacobson and Tribe, 1972). The incidence reported here of 29 per cent is about average. These episodes may account for most of the previous psychiatric referrals, which at 33 per cent is about average (Smith and Davison, 1971; Jacobson and Tribe, 1972).

It is noteworthy that in a third of the patients, precipitating factors were not identified, due to reticence on the part of either the patient to disclose, or the doctor to pursue. However, the larger number of males in this group, and the greater tendency to repetition suggests that the explanation lies within the patient. It may be that inability to confide their problems in another has led to the present crisis. For some patients, the crisis achieves a dialogue through which problems may be relieved. For others, the barriers and the problems remain, and, unless solved, may precipitate another episode. For this reason, we would recommend that patients who are reluctant to discuss their problems with a physician should be referred to a psychiatrist, in those hospitals where such action is not universally possible.

The differing choice of drug with age reported in Edinburgh (Kessel, 1965) and elsewhere (Evans, 1967; Bean, 1974), was not apparent in Chelmsford. The relatively constant use of salicylates in different age groups reflects their easy availability. In most reported series, barbiturates have formed the largest single group (Matthew *et al.*, 1969; Smith and Davison, 1971; Smith, 1972; Jacobson and Tribe, 1972; Mitchell and Lawson, 1974) although there has been a tendency in recent years for it to be replaced by tranquillisers (Aitken *et al.*, 1969; Lawson and Mitchell, 1972; Tulloch, 1972) reflecting changing prescribing patterns. In the attempted suicide group, the barbiturates are reduced to fourth place, while the benzodiazepines were the most commonly used single group of drugs, being involved in a third of the cases. In view of the lower mortality experienced with this group, this trend is a welcome sign. Alcohol has featured prominently elsewhere (Patel *et al.*, 1972) but was quite rarely recorded in our patients, who, however, did not have routine blood alcohol levels estimated. The greater use of barbiturates among the suicide group probably reflects the greater lethal potential of these agents, but the extent to which the determined patient exercises positive discrimination towards these is unknown. Alternatively, the choice of method may reflect the different age distribution, the increasing use of barbiturates with age being well reported (Kessel, 1965) although not apparent in this survey.

The absence of any registered drug addicts is remarkable; from the figures reported from Edinburgh (Ovenstone, 1973) we might have expected six cases. This emphasises the difference between our populations.

This data indicates that about one-fifth did not have psychiatric disease. This figure is similar to that reported by Kessel (1965), as are those for the positive diagnoses.

Gastric lavage was probably performed more often than strictly medical criteria would necessitate. One may not ignore the punitive aspect of this form of 'therapy' in the eyes of many Casualty staff. Although the masochistic aspects of this treatment have been refuted (Kennedy, 1972) the sadistic possibilities remain to be disproved. It is interesting that there was some indication of the 'preventive' (and hence punitive?) value of gastric lavage in these figures, in that those treated were less likely to repeat. Fortunately, perhaps, these figures were not statistically significant. A more acceptable explanation of this trend is that only patients who were fully conscious were considered for gastric lavage. It has been shown above that these patients were less likely to repeat. In view of the doubtful efficacy and safety of this procedure (Robertson, 1971; Matthew, 1971) it is mandatory that gastric lavage should be performed only for strictly defined criteria.

Only 40 per cent of those admitted were referred to a psychiatrist. This falls far short of the ideal practice which is based on the observation that the severity of poisoning does not indicate the degree of psychiatric morbidity (Kessel, 1965; Matthew *et al.*, 1969). In this series, however, severity of poisoning, as indicated by impairment of consciousness, led to greater referral for formal psychiatric

assessment. Length of hospital stay may also be an indication of severity, and, in fact, was well correlated with psychiatric referral. It is unlikely that patients stayed in hospital longer through waiting for a psychiatric appointment, as many of the longer-stay patients had been seen soon after admission. In fact, the percentage of patients seen by a psychiatrist during each time group shows no increase. This indicates that the decision to refer was influenced by the clinical severity of the case at presentation. The death rate of 1.1 per cent is of the same order as many similar series (Kessel and McCulloch, 1966; Green and Bagley, 1971).

The follow-up rate achieved of less than 80 per cent was poor, but compares favourably with the 70 per cent response by general practitioners to the questionnaire of Parkin and Stengel (1965). Greater success has been obtained by a direct approach to the patient (Greer and Bagley, 1971), but this may have resulted from the closer supervision afforded by the integral involvement of a psychiatric unit. There are, of course, good reasons for avoiding direct patient contact, as this would inevitably awaken memories of an unpleasant incident which many patients are trying to live down. This consideration was a major factor in the minds of general practitioners who refused consent to a direct approach to the patient from us — in 36 per cent (51) of those patients followed-up.

About a fifth repeated during the follow-up period. The same rate was reported by Kessel and McCulloch (1966). Similar concordance occurs in the number of times repetition occurred, and the number of subsequent successful attempts. However, all the Edinburgh patients had received psychiatric assessment. In view of the difference in these populations that has already been mentioned, it is possible that greater application of emergency psychiatric treatment would enable better figures to be obtained in Chelmsford.

Attempts to prevent subsequent completed suicide have centred on the identification of a high-risk group among attempted suicides. As only 1 to 2 per cent of these subsequently achieve self-inflicted death, elucidation of any distinguishing features of this group is impossible in a small series. Attention has focused on identifying those likely to repeat, among whom are those who will later be successful. Even so, there is no certainty that the overall features of the group of repeaters corresponds to the particular features of the minority within it (12 per cent in this group) who will repeat successfully. It is well known, in fact, that 'suicides' and 'attempted suicides' form quite different populations, so much so that they have been considered to be distinct entities (Ovenstone, 1973). With these reservations in mind, an attempt was made to identify the features of a high-risk group.

THE REPEATERS

An excess of males among the repeaters has been reported before (Buglass and McCulloch, 1970; Greer and Bagley, 1971), but in this group did not reach

significant levels except in the 25 to 34 year age group. This age group also had a high-risk in Kessel and McCulloch's (1966) series, who also found that the unmarried (single or ended marriages) were at greater risk. In our group the reverse was true, although not significantly so.

A history of previous attempt was also found to be significant by Greer and Bagley (1971) and (for females) by Buglass and McCulloch (1970). Similarly, the association of previous psychiatric treatment and repetition has been reported (Kessel and McCulloch, 1966; Buglass and McCulloch, 1970).

Excess repetition associated with tricyclics and benzodiazepines has not previously been reported. This is no doubt a reflection of the greater psychiatric disturbance in those patients to whom these drugs are easily available.

The higher incidence of repetition in those with a 'personality disorder' is open to the objections mentioned. It does, however, accord well with expectations and previous reports (Kessel and McCulloch, 1966; Greer and Bagley, 1971). Antisocial behaviour as indicated by self-discharge also showed a correlation with repetition, although not significantly.

Alcoholism, drug addiction, self-injury and impulsiveness have previously been reported (Kessel and McCulloch, 1966; Greer and Bagley, 1971) to be associated with a high incidence of repetition. The small numbers of these factors in this series precluded analysis.

As a result of this survey, 10 patients were identified who were admitted to hospital but not referred to a psychiatrist, and who subsequently repeated. Review of these patients' notes revealed that six of these had refused psychiatric help when offered, or had taken their own discharge. One patient had recently been under psychiatric care, and the psychiatrist concerned felt that further consultation was unnecessary. This patient and another were offered other forms of support.

The results, therefore, indicate a degree of success in selecting the repeaters for psychiatric care. This is supported by the relative excess of repeaters among those referred to a psychiatrist, although it is interesting that this excess is greatest in those selected for an outpatient appointment. These results suggest that an interview on the ward provided effective therapy, whereas in outpatients at a later date it was largely ineffective. The physician's motto therefore should be 'strike while the iron is hot' to achieve effective crisis intervention, as suggested by both London and Edinburgh poisoning treatment centres (Greer and Bagley, 1971; Kennedy, 1972).

SUMMARY

In a review of suicidal behaviour seen at the Chelmsford Hospital Group in 1972, of a total of 177 cases, 155 were admitted to the general medical wards. The incidence in the local population ranged from 0.59 to 0.99 per 1,000. Almost all attempts involved drugs, of which the benzodiazepines formed the largest group, being involved in one-third of all cases. The hospital services required are analysed,

including psychiatric services, which are not an integral part of this hospital group. Only 19 per cent made subsequent attempts in the follow-up period even though only 43 per cent were referred for a psychiatric opinion.

Patients were more likely to repeat if they had a past history of psychiatric treatment ($p < 0.05$) or suicidal behaviour ($p < 0.005$); if sufficient drugs had been taken to cause impairment of consciousness ($p < 0.01$); if tricyclics or benzodiazepines had been used ($p < 0.05$); or if the patient was reluctant to offer an explanation for the attempt ($p < 0.01$).

The concurrent figures for completed suicides in the same area are analysed for comparison.

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