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Attempted Suicide as Language: An Empirical Study

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It is widely accepted by clinicians that many so-called 'suicidal attempts' function as a form of communication between the patient and the key figures in his environment, most often conveying an appeal for attention (Stengel *et al.*, 1959, Farberow and Shneidman 1961). Yet little rigorous research has been directed to the communicational aspect of attempted suicide, possibly because the concept of communication is itself complex and difficult to define operationally. One line of enquiry has been to examine the consequences of the act for the patient, his family, and friends (McCulloch 1965). The present study, on the other hand, focuses particularly on attempted suicide as a *subcultural* phenomenon.

We have postulated that many patients who attempt suicide are drawn from a section of the community in which self-aggression is generally recognized as a means of conveying a certain kind of information. Among this group the act is viewed as comprehensible and consistent with the rest of the cultural pattern, and possibly as appropriate behaviour in some circumstances, even if not formally condoned. If this is true, it follows that the individual who in particular situations, usually of distress, wishes to convey information about his difficulties to others, does not have to invent a communicational medium *de novo*, nor is his choice of behaviour wholly explicable in terms of purely intrapsychic conflict. The individual within the 'attempted suicide subculture' can perform an act which carries a preformed meaning; all he requires to do is to invoke it. The process is essentially similar to that whereby a person uses a word in a spoken language, though certain important differences also exist (such as the relative lack of precision which often characterizes behavioural as compared to semantic communication).

Our hypothesis, then, is that there is a subculture in contemporary society in which the communicational functions of attempted suicide are particularly well defined. The term 'subculture' requires some further specification: as we see it the definition has two important parts. First it demands that the individuals within the subculture are socially interacting. Thus, we would not consider the unemployed for example (among whom attempted suicide is particularly high) to constitute a subculture, since there is no evidence that they form a socially interactive group. Secondly, the definition stipulates that a particular cultural pattern is distinctive for a section of the population. From communication theory it can be argued that one salient feature of the subculture we are considering must be a relatively high rate of attempted suicide. In more general terms, we can say that attempted suicide must be a behavioural option which is more readily available to members of the postulated subculture than to individuals in the society at large. Assuming then that 'distress' is ubiquitous and falls equally on all sections of the society—an assumption which will be examined in more detail later—our hypothesis leads to the prediction that rates of attempted suicide should be higher among those who constitute the putative subculture than for the population at large. In making such comparison it is of course necessary to give due allowance to individual characteristics such as age, sex, social class, etc., which are known to influence rates of attempted suicide.

In operational terms we defined the group to be studied as the family and intimate friends of a series of patients attempting suicide, and subsequently sought to determine and evaluate the frequency of attempted suicides among these close acquaintances.

Method

The Regional Poisoning Treatment Centre (R.P.T.C.) at the Royal Infirmary, Edinburgh

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receives over 90 per cent of all hospital-treated cases of attempted suicide in the city (Kessel *et al.*, 1964). Every patient presenting to the hospital with self-poisoning or self-injury, no matter how seemingly trivial, is admitted for assessment, which includes psychiatric examination. A one-year admission cohort (mid 1962–mid 1963) has already been analysed by Kessel (1965) and McCulloch (1965), and these authors kindly put their data at our disposal for further use. Detailed records have been routinely maintained at the Centre since 1963, thus providing data for the subsequent years.

Between 16 January and 31 March 1967, an attempt was made by one of us (E.S.T.) to interview all patients admitted to the Centre with a diagnosis of 'attempted suicide', i.e. excluding all clearly accidental self-poisonings or accidental self-injuries. One patient who died in consequence of his act, and who was therefore categorized as a suicide, was also omitted. Patients with multiple admissions during this period—there were 7 with two admissions and 3 with three admissions—were interviewed only once. For each patient identifying data were collected and the psychiatric diagnosis noted: in addition each was asked to name certain of his kin and close friends, as detailed below, with their approximate age and current address, and their addresses over the previous four years.

For a random sample of 10 per cent of the patients, information was sought in the same way from another family member at visiting times: in no case were discrepancies elicited between the patient's and the informant's account on any important detail, such as the identity of family members, address at any relevant time, or age to within five years. The method of data collection thus seemed reasonably reliable.

The patients will be termed 'probands' and their relatives and friends 'contacts'. Among the contacts, attempted suicides admitted to the R.P.T.C. during the survey period (1 January 1963 and 31 December 1966) were subsequently identified from the hospital registers.

The Probands

One important function of the Centre is to provide a rapid screening and psychiatric first-aid service. With approximately 1,000 admissions in 1967 to 20 beds, the turnover is necessarily high, and many patients are discharged within a day of admission. Hence it was not possible to interview all patients, especially as the interviewer could not be constantly present. During the study period, 181 persons who had attempted suicide were admitted at least once, and 135 were interviewed: the 46 patients not interviewed included one deaf-mute and one who was too ill, physically at the close of the study. Table I relates the proband sample to all patients admitted by duration of stay, and shows that the greatest proportional deficit was among the very rapidly discharged patients, as would be expected. Table II compares the probands and total patient group by age and sex. Each age sub-group is represented in approximately equal proportions and there is no apparent sex difference.

Table I

Characteristics of proband sample by duration of stay

Length of stay in days	No. of patients admitted			No. of patients interviewed			Percentage of patients interviewed
	M	F	Total	M	F	Total	(M+F)
0—	5	4	9	3	1	4	44·4
1—	19	34	53	10	20	30	56·6
2—	19	37	56	16	27	43	76·8
3—	11	15	26	11	14	25	96·1
4+	19	18	37	17	16	33	89·2
Total	73	108	181	57	78	135	74·6

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TABLE II

Characteristics of proband sample by age and sex

Age	No. of patients admitted			No. of patients interviewed			Percentage of patients interviewed		
	M	F	Total	M	F	Total	M	F	Total
0–14	0	4	4	0	3	3			} 73·3
15–	7	19	26	6	16	22			
20–	11	21	32	7	16	23			71·9
25–	18	24	42	14	17	31			73·8
35–	21	16	37	18	9	27			73·0
45–	10	12	22	7	9	16			72·7
55–	6	12	18	5	8	13			72·2
All ages	73	108	181	57	78	135	73·8	72·2	74·6

THE CONTACTS

Each proband was asked to identify and to give the details already specified about his or her father, mother, spouse, children, siblings and siblings' spouses: he was also asked to name two close friends and to indicate if they were blood-kin, e.g. cousins. Only those contacts were considered who were alive and resident in Edinburgh for at least part of the 1963-66 period (as attempted suicide rates by geographic area are only available for electoral wards within the city) and who were known to be aged 15 or over. The population considered to be at risk consisted of 578 individuals. Table III gives the age-sex composition of this population while Table IV shows the composition by type of kinship.

Calculation of expected numbers

Full details of the statistical calculations have been reported elsewhere (Kreitman *et al.*, 1969), and the following account is mainly concerned with the general principles.

TABLE III

'At risk' contact population by age and sex

Age	No. of males	No. of females
15—	40	40
20—	35	27
25—	68	60
35—	49	59
45—	49	43
55—	37	34
65+	17	20
Total	295	283

TABLE IV

Type of kinship of contact population by sex of proband

Type of kinship	No. for male probands	No. for female probands	Total
Spouse	25	34	59
Father	20	27	47
Mother	30	30	60
Child	9	32	41
Twin	1	0	1
Sibling	93	78	171
Half-sib	0	1	1
Sibs spouse	59	54	113
Friend-unrelated ..	32	49	81
Friend—related ..	0	4	4
	269	309	578

Data already existed concerning rates of attempted suicide in the city of Edinburgh over the survey period (1963–1966): where definitive information was lacking we have been able to make estimates which we believe likely to be reasonably accurate. We could thus calculate for each of the 578 contacts the *expectation* of being admitted at least once to the R.P.T.C. with a diagnosis of attempted suicide during the survey period, on the assumption that each individual was subject to the admission rates which would apply to an 'equivalent person' randomly sampled from the general population of Edinburgh. In determining the expectation of admission we had regard to the individual contact's

(a) Sex
(b) Age, at the mid-point of the survey
(c) Area of residence.

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By the use of 'area factors' (similar to standardized morbidity ratios) we were able to represent concisely the effect of a wide range of variables which are correlated with rates of attempted suicide. The usefulness of such ecological indices in the investigation of attempted suicide has been explored by Philip *et al.*, (1966) and McCulloch *et al.* (1967).

(d) Duration of exposure. For each contact the time spent in each ward during the survey period, or time spent outside the city, was recorded to the nearest month, and in the calculations due allowance was made for any change of address. Individuals whose address was not known for any part of the four-year period were assumed to be living in the ward with the highest risk of admission; the small bias so introduced would tend to support the null hypothesis.

Having established for each contact his likelihood of admission, we were able to determine the total number of individuals we would expect to be admitted from the whole group of contacts or any subgroup thereof. This expected number could then be compared with the number actually identified.

Results

Seventeen members of the contact population were admitted to the Centre at least once during the survey period. This is significantly greater than the expected number of 4·23 obtained from the computations detailed above ($p<\cdot001$).

Further analyses were made according to the characteristics of (a) the probands (b) the contacts, and (c) proband-contact pairs where the contact had made a suicidal attempt.

A. By proband characteristics

1. *Duration of stay.* It will be recalled that our sample of probands under-represented patients who were rapidly discharged from the Centre during the study. We therefore dichotomized the sample at 2 days (as suggested by Table I), and calculated the number of positive contacts to be expected in each group (E) by the method previously described. It is not desired, however, to test for an excess in each of the groups individually, but rather to determine whether the magnitude of the excess is proportionately the same in both. Therefore, in this and in the following comparisons, the calculated expected numbers in each group have been multiplied by the ratio of the total observed attempted suicides (17) to the total expected (4·23). Thus the revised expected numbers (E^1) have been made to total the observed number (17), and the observed and expected distributions between groups have been compared using a χ^2 test. For the data on duration of stay they were found to be not significantly different (Table V). (The precise significance level obtained should be interpreted with some caution see Kreitman *et al.*, 1969).

2. *Age and sex.* Age and sex were considered in an analogous manner, and the results are given in Table VI. There appears to be no difference between the sexes in the frequency with which patients have a positive contact, but patients below 35 years of age have a relative excess, and older patients a relative lack of such contacts ($p<\cdot02$). The data also suggest ($p<\cdot05$) that this age effect is principally found among women, though the numbers on which this calculation is based are small.

3. *Mode of suicidal attempt.* The commonest method of 'attempted suicide' in Edinburgh is self-poisoning with drugs (Aitken *et al.*, 1968).

Table V

Proband characteristics: duration of stay and distribution of positive contacts

Duration of patient's stay	No. of contacts at risk	Positive contacts		Proportion expected (E^1)
		No. observed (O)	No. expected (E)	
<2 days	141	2	0·98	3·94
2 days + ...	437	15	3·25	13·06
Total	578	17	4·23	17·00

$\chi^2 = 1\cdot243$, d.f. = 1, $p<\cdot30$.

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TABLE VI

Proband characteristics: age and sex, and distribution of positive contacts

Proband characteristic	No. of contacts at risk	Positive contacts		Proportion expected
		No. observed	No. expected	
		(O)	(E)	(E^1)
Sex—male	269	8	2·11	8·48
female	309	9	2·12	8·52
Total	578	17	4·23	17·00
χ^2 = ·054, d.f. = 1, p<·80.				
Age—34..	299	14	2·27	8·93
35+	279	3	1·96	8·07
Total	578	17	4·23	17·00
χ^2 = 6·063, d.f. = 1, p<·02.				
Age and sex				
M—34	135	5	1·17	4·70
35+	134	3	·94	3·78
F—34	164	9	1·10	4·42
35+	145	0	1·02	4·10
Total	578	17	4·23	17·00
χ^2 = 9·026, d.f. = 3, p<·05.				

Distinguishing such patients from all those using other modes, as in Table VII, shows that all the positive contacts were among the entourage of the self-poisoning probands. Mode of attempt is thus significantly associated with the distribution of positive contacts (p<·05).

Other variables examined for an effect on the distribution of positive contacts included social class, marital status, previous admissions to the R.P.T.C., the diagnosis of the psychiatric illness present on admission, personality type, birth order and size of sibship. None yielded statistically significant findings.

B. By contact characteristics

It seemed possible that certain classes of the contact population might be especially likely to have an excess of positive contacts among them. Age and sex appeared to be unimportant in this connection, nor were we able to show that any one of seven types of kinship with the proband was specially at risk. The number of contacts in each kinship category was sometimes small, but we wished to consider the important possibility that the excess of positive contacts in the population at risk might reflect genetic linkage with the probands. The kinship categories were therefore summarized into those with blood relationships (parents, siblings, children and related friends) and those without blood ties (spouses, spouses of sibs and unrelated friends). It can be seen in Table VIII that the distribution of positive contact between the two groups is not significantly different from that expected.

C. Patient-contact relationship

Finally we examined the 17 pairs of patients and their positive contacts.

1. *Time interval.* The time interval between the admissions of the contacts and the probands can be seen in Table IX. Since three contacts had multiple admissions within the survey period, the data for the contacts' first and latest admissions are shown separately. Though the numbers are very small, it can be seen that most of the contacts' admissions (by either classification) tend to fall in the latter part of the survey period.

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TABLE VII

Proband characteristics: mode of attempt and distribution of positive contacts

Mode of attempt	No. of contacts at risk	Positive contacts		Proportion expected
		No. observed	No. expected	
		(O)	(E)	(E^1)
Drugs	476	17	3·34	13·42
Other	102	0	·89	3·58
Total	578	17	4·23	17·00

$\chi^2 = 4{\cdot}535$, d.f. = 1, $p < {\cdot}05$.

TABLE VIII

Contact characteristics: type of kinship and distribution of positive contacts

Type of kinship	No. of contacts at risk	Positive contacts		Proportion expected
		No. observed (O)	No. expected (E)	(E^1)
Blood kin	324	12	2·21	8·88
Other	254	5	2·02	8·12
Total	578	17	4·23	17·00

$\chi^2 = 2{\cdot}295$, d.f. = 1, $p < {\cdot}20$.

TABLE IX

Interval between admission of positive contacts and patients in 1967

Year of contacts' admission	Interval between admissions (Years*)	No. of positive contacts admitted at stated interval	
		First admission of contact	Last admission of contact
1963	4	4	2
1964	3	2	2
1965	2	4	3
1966	1	7	10

Represents difference in calendar years of admissions not actual dates.

2. *Age, sex and kinship.* The small number of pairs and the diversity of kinships make our data little more than anecdotal in this context. Table X illustrates the matching between probands and positive contacts by age, sex and the kinship of the contact to the proband. No female patient over 35 had a positive contact, and no positive contacts were men over 35. Within the series there was no statistically significant concordance between the probands and contacts for age or sex. The average ages of the probands on admission and the positive contacts at the mid-point of the survey period were very similar, with respective means and standard errors of $25{\cdot}5 \pm 1{\cdot}9$ and $24{\cdot}9 \pm 3{\cdot}2$. Nearly all the positive male contacts were brothers.

3. *Diagnosis.* There was no significant association within the series of pairs on illness diagnosis in four broad diagnostic categories. The personality diagnosis of one positive contact was uncertain; among the remaining 16 pairs 11 were alike in being classified as normal or abnormal, evidence for the latter being addiction to drugs, alcoholism or markedly psychopathic behaviour (Table XI). This rather high proportion is of interest, but is not great enough to permit rejection of the null hypothesis.

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TABLE X
Age, sex and relationship of positive contact to probands

Positive contacts	Probands			
	Male		Female	
	−34	35+	−34	35+
Male				
−34	Brother Brother Brother	Brother	Brother Brother Boy-friend	
35+				
Female				
−34	Girl-friend Sister-in-law	Wife Step-daughter	Daughter Sister Sister-in-law	
35+			Mother Friend Friend	

TABLE XI
Proband-contact pairs: association on personality diagnosis

	Proband		
	Normal personality	Abnormal personality	Total
Contact			
Normal personality	5	1	6
Abnormal personality	4	6	10
Total	9	7	16

p = ·241 (Fisher's Exact Probability Test)

4. *Precipitating events.* An alternative explanation of our findings might be to argue that the paired suicidal attempts might simply reflect common stresses falling on several family members at the same time. This argument is more complex than at first appears, and we are uncertain of its logic, but nevertheless we have examined the case records in some detail to determine whether such common stresses could be detected. In two pairs it appeared that the act of one partner could be construed as a consequence of the suicidal attempt by the other, but there was no evidence of a common cause. Similarly, there was no evidence in the remaining 15 pairs of any common precipitating events, and there were no examples of suicide pacts. On the other hand, the case notes often testified to the poor organization and social inadequacy of many of the families, an observation in keeping with our subcultural hypotheses rather than against it.

DISCUSSION

The central methodological problem in this study has been the estimation of the number of individuals in the population of contacts who would be expected to have at least one episode of hospital treatment for 'attempted suicide' during the survey period. Demonstration of an excess of observed to expected positive contacts in such a population, with expectation derived solely from data on age, sex, and duration of risk, would be inadequate for our purpose, since such a result would be interpreted to mean little more than that the families and close friends of the probands shared the social stresses which are so widespread among patients attempting suicide. To make allowance for commonality of experience, we have used area factors to supplement demographic data. These factors reflect not only defined variables likely to influence rates of attempted suicide but also further and as yet unidentified variables which at present can only be demonstrated geographi-

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cally. How far the patients are typical of their areas has been explored elsewhere (McCulloch and Philip, 1966, 1967). Here it must be pointed out that characteristics which distinguish the various city wards may also distinguish between the patient (and his family) and the rest of the population within his own ward. Thus, a level of social disorganization which is typical of a particular ward may under-represent the amount of disorganization to be found among the attempted suicides (and their families) within that ward. In so far as this is so, we will have under-estimated the expected number of positive cases in the contact population. Even though compensatory biases have occurred at other stages of the analysis, our results must clearly be interpreted with caution.

The most important single finding was the four-fold excess of observed to expected numbers of positive contacts. This alone does not, of course, establish the 'language' theory of suicidal behaviour, but is certainly compatible with it.

Significantly more younger than older probands had a positive contact, and there was a suggestion that the age effect might be particularly important for women. Both these findings are in accord with what is known of other forms of 'communicated' or 'communicational' psychopathology, such as epidemic hysteria and folie à deux. It was also found that positive contacts were significantly more numerous for probands using self-poisoning rather than self-injury. It is noteworthy that the rapid rise in admission rates for attempted suicide in Edinburgh over the last five years (Aitken *et al.*, 1968) has been entirely due to increasing self-poisoning: it is thus possible that the rise is at least partly due to case-to-case spread. However, we must clarify that such speculations are outside the immediate focus of our study; we have been concerned with the possible existence of a special subculture rather than the ways in which it might spread. We hope to explore such 'contagion' effects in another study.

Among the contact population, age and sex did not influence the proportional excess of positive contacts. It is important to note that those contacts linked genetically with the probands had no significant excess of positive cases when compared with other individuals in the population. Any familial transmission of predisposition to attempted suicidal behaviour is therefore likely to be cultural rather than genetic.

It would seem that if we are correct in interpreting our findings as compatible with the communication hypothesis, then we have succeeded in characterizing the 'recipients' in the communication process, namely the probands, more closely than the 'transmitters' or positive contacts. It may well be that only certain classes of individuals behave in an imitative manner in the context of the self-aggression of others. But, clearly, a further understanding of the process would require close study of pairs of individuals. In this respect the present study has yielded too few examples for adequate analysis, and can only serve as a pointer to further studies based on larger samples. Our data suggest that 17/135 or approximately 12·5 per cent of hospital-treated patients are members of pairs in which both individuals have attempted suicide within four years of each other.

Lastly, we must point out that the test of the language theory described here is only one of many such tests which might be attempted. We have considered only 'symmetrical' responses, where the form of communication (the act) is alike in both the positive contact and the proband. But is seems highly likely that symmetrical responses are the exception rather than the rule in any human communication system. Other forms of behaviour are doubtless more typical antecedents or consequences of suicidal attempts. Their delineation and study might contribute to a further understanding not only of attempted suicide but of pathological forms of communication in general.

Summary

1. It is proposed that the concept of 'attempted suicide' as a form of communication leads to the hypothesis that suicidal attempts should occur in socially-linked groups of individuals with a frequency greater than would be expected from a sample of the general population matched for those demographic factors known to influence rates of attempted suicide.

2. Between 1 January and 31 March 1967, 181 persons diagnosed as attempted suicides

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were admitted to the Regional Poisons Treatment Centre, Royal Infirmary, Edinburgh, of whom 135 were interviewed to ascertain, *inter alia*, details of their close associates ('contacts') including name, age, sex and residence between January 1962 and December 1966. The data were checked from another family member in 10 per cent of the patients, and were found to be of acceptable reliability. Contacts who for at least part of the survey period were alive, aged over 15 and resident in Edinburgh, totalled 578: those constituted the 'population at risk'.

3. For each individual contact the expectation of being admitted to the R.P.T.C. at least once during the survey period was calculated, using previously determined rates for age, sex and duration of residence in each of the city wards; for the latter 'area factors', calculated as standardized morbidity ratios were used.

4. The actual number of attempted suicides was ascertained by checking each contact's name in the Centre's registers.

5. For the whole group of patients, 17 positive contacts were identified, which was significantly greater than the expected number of 4·23 ($p<\cdot001$). There was evidence that an excess of positive contacts was characteristic of those below 35 years of age ($p<\cdot02$), especially for females and of those using drugs in their suicidal attempt ($p<\cdot05$); other variables were without significant effect.

6. Among the population at risk no significant excess was demonstrable among those biologically related to the patients as compared with other family members and friends.

7. There was tentative evidence that the positive contacts tended to have made their suicidal attempt towards the end of the survey period rather than uniformly over the 4 years at risk.

8. The results were reviewed, and with certain reservations it was concluded that the findings were compatible with the hypothesis advanced. Alternative tests of the 'language' theory may be useful for an understanding not only of attempted suicide but also of other forms of pathological communication.

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