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QUANTIFICATION OF CERTAIN TRENDS IN ATTEMPTED SUICIDE*

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SINCE the classic research of Durkheim (3), first published in 1897, the frequent occurrence of certain statistical trends and personality characteristics among persons who have attempted or committed suicide has been noted in a number of large-scale studies (reviewed by Rost (7), Dublin and Bunzel (2), Dahlgren (1), Weiss (12, 13), Sainsbury (8), Stengel and Cook (10), and Farberow and Shneidman (4)). Such investigations have indicated that the more serious or successful suicidal attempts are most likely to occur among older persons, males, white and non-white non-Negro groups, divorced and single persons, foreign-born men, persons from the "upper" socio-economic classes (as well as men 65 years old and older from the "lower" socio-economic classes), persons isolated socially, persons with one or more close relatives dead, persons who use shooting or hanging as the attempted or considered method, persons who attribute the act to concern about "ill health," persons who consider their attempts "serious" and who "expect to die," and persons suffering from affective psychoses, delirious states, chronic brain syndrome, or chronic alcoholism. There has been some suggestion that persons who have made prior suicidal attempts, who have a history of suicide in the immediate family, who are suffering from schizophrenic reactions, or who appear depressed are also more likely to make serious or successful attempts.

It is difficult or even impossible, however, to generalize with validity from nomothetic studies of suicidal attempts, because reports of the rates of suicidal attempts represent only a fraction of the real incidence of *all* suicidal attempts among the general population. To date, these studies also have not indicated clearly whether the trends described therein might serve as indicators of the seriousness of suicidal attempts when dealing with small numbers of—or even *individual*—patients, a matter of considerable concern to the clinician. To answer this question, various characteristics of a small group of patients admitted to a metropolitan general hospital because of suicidal attempts were studied.

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METHOD OF INVESTIGATION

Thirty-five patients admitted consecutively to St. Louis City Hospital, St. Louis, Missouri, because of suicidal attempts were studied. Each patient was interviewed by a psychiatrist within one day after admission, and data about the psychological intent of the attempt, the medical consequences of the attempt, and the past history of the patient were recorded. Scoring for degrees of medical danger and of psychological intent was carried out independently by two of us (J.M.A.W. and N.N.). Where there was a discrepancy the case was carefully reviewed and discussed by all three authors and an agreed score decided upon. Stengel and Cook have reviewed the confusion which exists in the psychiatric literature relating to evaluation of the seriousness of suicidal attempts, and concluded that it is necessary to consider the degree of medical injury and the degree of psychological intent separately. In each of our cases, therefore, the degree of medical danger and the degree of psychological intent were assessed and scored separately.

As to the medical consequences, nine cases were rated as "absolutely dangerous," indicating that the act had resulted in severe danger to life, so that there was a very high probability that the patient would die except

for timely medical intervention (two patients did die). Generally these acts produced such consequences as coma, bloody diarrhoea, penetrating injury, fracture of a major bone, or laceration of a major artery. Fifteen cases were rated as "absolutely harmless," indicating that there was no chance that the act would cause death under any foreseeable circumstances. Eleven cases were rated as "somewhat dangerous," an in-between category.

In regard to psychological intent, ten cases were rated as "serious," indicating that an unambiguous impulse to suicide was admitted by the patient and also borne out by the patient's behaviour before, during, and after the attempt. In such cases, the patient did not inform anyone else of the attempt prior to its occurrence in order to effect a rescue, did not expect others to arrive in time to prevent death, did not make the attempt when other persons were present or nearby, and expected that he or she would certainly die as a result of the act. In eight cases, the attempt was rated as a "gesture" because the patient clearly did *not* expect to die (as evidenced by his overt admission and behaviour). In 17 cases, the intent was rated as a "gamble with death" (as defined by Weiss), indicating that the act was neither "serious" nor a "gesture," that the patient was uncertain about the possible consequences of the act or that he did not know for sure whether or not he could expect certain death as a result of the act, but that he believed that there was *some* chance (even a good chance) of dying (as evidenced by his overt admission and behaviour).

Categorizing the attempts, then, in terms of both medical consequences and psychological intent, it was determined that of the 35 cases, eight were absolutely harmless gestures, seven were absolutely harmless gambles, eight were somewhat dangerous gambles, two were absolutely dangerous gambles, three were somewhat dangerous attempts with serious intent, and seven were absolutely dangerous attempts with serious intent. This distribution is quite similar to that found by Stengel and Cook in 158 cases in England, except that there was a somewhat greater tendency in their study for the less dangerous "gestures" and "gambles" to be rated "somewhat dangerous" rather than "absolutely harmless."

For statistical analysis, it appeared appropriate to condense the "somewhat dangerous" and the "absolutely dangerous" groups, resulting in four larger groups: eight harmless gestures, seven harmless gambles, ten dangerous gambles (eight of these were "somewhat dangerous" and two were "absolutely dangerous"), and ten dangerous, serious attempts (three of these were "somewhat dangerous" and seven were "absolutely dangerous").

Using Weiss' terminology, cases in the last group were called "aborted successful suicidal attempts" (and, indeed, two of them *were* eventually successful, insofar as the patient—after some intervening time—died as a consequence of the attempt). In general, using a variety of combinations for statistical analysis, the "aborted successful suicidal attempts" were qualitatively different from the other three groups, and the other three groups tended to be much more similar (in the characteristics of the attempts and the attemptors) to each other, than they were to the "aborted successful suicidal attempts."[a]

Results

Intent. The ten attemptors whose intent was serious were most likely to produce dangerous (usually absolutely dangerous) medical consequences. The eight attemptors whose intent was to make a gesture were most likely to have no dangerous medical consequences whatsoever. The other 17 patients, who were not certain of their intent, might produce *no* dangerous medical consequences or *somewhat* dangerous medical consequences, but were unlikely to produce *absolutely* dangerous medical consequences ($p = 0.001$).

Age. The median age for persons making aborted successful suicidal attempts was 49, and the age range was from 29 to 75. The median age in the other three groups was from 21 to 25, and the age range in each group was from 15 or 16 to 46, 59, and 50 respectively. In the total group of 35, six patients were under 20 years of age, 19 were from 20 to 44 years old, eight were from 45 to 64 years old (five of these were in the aborted successful suicidal attempt group), and two patients were 65 years or older (both in the aborted successful suicidal group). *All* members of the aborted successful suicidal attempt group were at or above the median age for the total group (29 years old), whereas more than half of each of the other three groups were *under* this age. There thus would appear to be a better than 50:50 chance that if a person 29 years old or older attempts suicide the result will be an aborted successful suicidal attempt ($p < 0.001$). There would appear to be a better than 2:1 chance that if a person 45 years or older attempts suicide, their attempt will fall in the most serious and dangerous attempt group ($p = 0.003$). Conversely, there is very little chance that the attempt of a person under 29 years of age will fall

[a] Chi square was used for statistical analysis whenever appropriate.

in the aborted successful suicidal attempt group ($p < 0.001$), and there would appear to be only one chance out of seven that the attempt of a person under 45 years of age will be an aborted successful suicidal attempt ($p = 0.003$).

Sex. There was no significant difference in the seriousness of the attempts between the 11 men and 24 women in this series.

Race. There was no significant difference in the seriousness of the attempts between the five Negroes and 30 whites in this series.

Marital status. In this series, fourteen of the patients were married, seven were single, seven were separated, five were divorced, and two were widowed. No matter what combinations were used, no significant differences were found among these groups in relation to the seriousness of the attempts.

Socio-economic status. There were no significant differences in the seriousness of the attempts when this factor was related to several combinations of estimation of socio-economic status.

Social isolation. There were no significant differences in the seriousness of the attempts of the eight persons who were socially isolated (who lived alone or in a hotel or boarding house), the five persons who lived with other people but not with their family (in a lodging other than a hotel or boarding house), and the 22 persons who lived with their families, in this series.

Suicide in the family. In only one case in this series had a member of the family (in this case, a sibling) committed suicide.

Prior suicidal attempts. There was no significant difference in the seriousness of the attempts between the 25 patients for whom no prior suicidal attempt was noted (in the hospital records or by the patient's admission) and the eight patients who *had* made suicidal attempts prior to the current one (six patients had made one such prior attempt, three had made two prior attempts, and one person had made more than two prior attempts).

Method of the attempt. In this series, one person shot himself, one person jumped from a high place, five persons cut or slashed themselves (one of these also inhaled a poisonous gas), six persons ingested a relatively toxic substance, such as roach poison or sulphate of cyanide solution (two of these also inhaled a poisonous gas), and 22 persons ingested relatively less toxic substances (barbiturates in 19 cases). These various methods of attempt were combined in a variety of ways for statistical analysis, and only one statistically significant relationship to the seriousness of the attempt was found: most persons (22 out of 26) who ingested poisons (whether or not these were relatively very toxic or relatively less toxic) and who did not use other methods in combination with the poisons generally did *not* fall in the aborted successful suicidal attempt group ($p = 0.01$).

Precipitating stress. Eighteen patients cited "family problems" as the stress which had precipitated their attempts, seven mentioned personal "mental" or "psychiatric illness" or the fear of same, three mentioned personal "physical ill health" or the fear of same, three noted "trouble in a love affair," two cited occupational or economic difficulties, one cited the recent death of a loved one (husband), and one said that he had felt "deprived of companionship" after his dog had been sent away. Few statistically significant relationships of the varieties of precipitating stress to the seriousness of the attempts could be found, except that: (1) those persons who cited "family trouble" were *not* likely to be found in the aborted successful suicidal attempt group (17/18 cases; $p = 0.003$), and (2) those persons who cited "mental illness" as the precipitating stress *were* likely to be found in the aborted successful suicidal attempt group (five out of seven cases; $p = 0.011$).

"Death trend." Several investigators have noted the frequent occurrence of a so-called "death trend" among persons who have attempted or committed suicide. The "death trend," a term apparently coined by Moss and Hamilton (5), designates a history for individual subjects of the death of one or more close relatives (i.e., parents, siblings, or spouse). Moss and Hamilton found such a death trend in 95 per cent of the case histories of a group of 50 patients who had made "serious" suicidal attempts, as compared with death trend rates of only 40 per cent in each of two matched control groups. Palmer (6) and Teicher (11) have noted roughly similar findings.

One of us (J.M.A.W.) had the opportunity to review the records of 109 patients who attempted suicide in St. Louis and who were interviewed and described by Schmidt, O'Neal, and Robins (9). In this group, the over-all death trend rate for the total group was 77 per cent. Because age correlates positively with the "seriousness" of suicidal attempts, all subgroup rates were then adjusted for age differences, using standard statistical techniques. It was then found that there was some tendency for patients whose attempts were considered medically dangerous (based on a physician's evaluation) or subjectively "serious" (based on the patient's own evaluation) to have higher death trend rates than did those persons whose

attempts were included in the "not-serious" subgroup, but this tendency was not statistically significant. When age-specific rather than age-adjusted rates were used, it was found that death trend rates were 100 per cent in all subgroups of patients who were 45 years old and older.

In the present investigation, 17 consecutive admissions (for any cause other than suicidal attempt) to the medical and surgical services of St. Louis City Hospital were used as control cases. These controls were matched exactly for age group, sex, and race, and were matched roughly for occupational group, socio-economic status, marital status, place of residence, nativity, and religion, with 17 subjects randomly selected from the 35 patients who had made suicidal attempts. The death trend rate in the control group was 76 per cent, and was almost the same in the subject group, 74 per cent.

Various combinations of which relative had died (parent, spouse, or sibling—including and excluding stillborn siblings and those siblings who had died within 30 days of birth) were analysed in relation to the seriousness of the suicidal attempts in the 35 cases in the present series. There was a definite tendency for patients with a positive death trend to fall into the more serious attempt groups ($p = 0.035$), and this tendency appeared to be most highly based on whether one or both *parents* were dead ($p = 0.023$). Patients whose siblings, spouses, or parents had not died were unlikely to fall into the aborted successful suicidal attempt groups.

However, when this relationship was analysed in patients under 45 years old, there were *no* statistically significant differences in the relationship of the death trend to the seriousness of the attempt (whether the analysis was made in terms of any pertinent relative who was dead, or just for a parent who was dead). In addition, when the death trend (positive or negative) was related to age (younger than 45, or 45 years old and older) for the medically dangerous cases only, it appeared that most of the positive death trend cases fell into the older group ($p = 0.025$), and this was true also in the total group of subjects. This would suggest that a positive death trend is a function of age and is probably *not* related to the seriousness of the suicidal attempt per se.

Clinical diagnosis. Of the 35 patients in this series, 16 were diagnosed as suffering from personality disorders (five of these being diagnosed as antisocial reaction), six persons were diagnosed as suffering from transient situational personality disorders, five persons were diagnosed as suffering from psychotic affective reactions, four persons were diagnosed as suffering from psychoneurotic depressive reactions, two persons were diagnosed as suffering from schizophrenic reactions, one person was diagnosed as being mentally defective, and in one case no diagnosis was made. Of the the seven persons receiving a diagnosis indicating a clinical psychotic process, six made attempts which fell into the aborted successful suicidal attempt group ($p = 0.001$). Only four of the 28 persons receiving diagnoses indicating other than a clinical psychotic process made attempts which fell in this most serious group.

Sixteen patients were considered to be clinically depressed, regardless of the primary diagnosis. Of these, nine made attempts which fell into the aborted successful suicidal attempt group, whereas only one out of the 19 persons who were not considered clinically depressed made such a serious attempt ($p = 0.001$). However, when this relationship was analysed using only the persons in our series who were younger than 45, no statistically significant differences in the relationship of depression to seriousness of the attempt appeared. In analysing depression versus age, it became apparent that the majority of patients who were *not* clinically depressed were in the age group of patients under 45 years old, although patients demonstrating clinical depression were spread throughout all age groups. Finally, analysing age versus clinical depression only in the groups where the consequences of the act were considered to be medically dangerous, it was found that seven out of the eight persons 45 years old and older in this group were clinically depressed, whereas only five out of the 12 younger persons were clinically depressed ($p = 0.05$). It would thus appear that depression as an indicator of the seriousness and/or danger of a suicidal attempt is most probably *only* a function of age.

Miscellaneous characteristics. Of the 35 patients in this series, four were acute alcoholics and three were chronic alcoholics, but this factor was not significantly related to the seriousness of the attempt. Fifteen of the 35 patients were slated to be transferred to a psychiatric ward; nine of the ten persons in the aborted successful suicidal attempt group were so transferred or slated to be transferred (two of the patients in this latter group died before such transfer could be effected). Only six of the 25 other patients were transferred ($p = 0.003$), suggesting that the resident psychiatrist evaluating these patients responded to the seriousness of the case in terms of disposition.

Comments and Conclusions

The many social, ecological, and personality factors which appear to relate to the seriousness of suicidal attempts in large-scale studies do not for the most part seem to be useful for prediction with small samples or individual patients. None of the following factors—sex, race, marital status, socio-economic status, social isolation, prior suicide in the family, death of close relatives, prior suicidal attempts by the patient, presence of acute or chronic alcoholism, or presence of non-psychotic clinical depression—appeared to be a statistically significant indicator of the seriousness or danger of the suicidal attempt for the small group of attemptors studied in this investigation.

The only statistically significant positive findings in this present study were: (1) Those attempts in which the psychological intent was serious tended to produce medical consequences which were dangerous, and those attemps in which the psychological intent was serious *and* the medical consequences were dangerous (called "aborted successful suicidal attempts") tended to be different in their characteristics from all other attempts, which tended to be comparatively similar in *their* characteristics. (2) The attempts of persons over the age of 45, of those who attributed the act to concern about personal "mental illness," and of those who were diagnosed as suffering from a cilinical psychotic process of any nature were most likely to be psychologically serious and medically dangerous. (3) The attempts of persons under the age of 30, of those whose method involved solely the ingestion of poisons, and of those who attributed the act to the precipitating stress of "family trouble" were generally *not* psychologically serious or medically dangerous.

The presence of a "death trend" (one or more close relatives of the attemptor being dead) and the presence of clinical depression (other than psychotic depression) did not appear to be significant indicators of the seriousness of the suicidal attempts in themselves; rather, these factors appeared to be a function of increasing age.

In terms of practical application, the results of this study would appear to indicate that suicidal attempts are most likely to be serious or successful if the attemptor is over 45 years of age, if he attributes his difficulty to personal "mental illness" or the fear of same, if he himself describes or admits his intent as serious, or if he appears to be clinically psychotic. It appears likely that suicidal attempts will *not* be serious or successful if the attemptor is under 30 years old, if the only method considered has been ingestion of poison, if the patient attributes his difficulty to "family troubles," if he is not psychotic, and if his admitted intent is anything other than certain death. If these conditions are not met, it seems probable that no rational predictions can be made.

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