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500 Psychological Autopsies

REFERENCE: Litman, R. E., **"500 Psychological Autopsies,"** *Journal of Forensic Sciences,* JFSCA, Vol. 34, No. 3, May 1989, pp. 638-646.

ABSTRACT: Five hundred psychological autopsies on equivocal (suicide versus accident) deaths were reviewed to ascertain which factors are significant in making the determination between suicidal and accidental deaths. Factors varied in relative importance according to the method used to cause death. Significant factors included life-style, recent stress, suicidal communications, previous self-destructive behaviors, history of depression, and obvious factors from the physical evidence such as large amounts of drugs in the blood. Although the court-provided decision guideline is "a preponderance of the evidence," in practice, the assembled evidence is often used to construct a "most credible" scenario to explain the death.

KEYWORDS: psychiatry, psychological autopsies, suicide, accidents, death certificates, overdoses, coroner

In the 1950s, the Los Angeles Chief Medical Examiner/Coroner began to refer equivocal deaths to the Suicide Prevention Center staff for investigation and for assistance and consultation in determining the most appropriate certification of the death, whether suicide or something else, such as accident or undetermined [*1,2*]. This data-gathering and decision-making process was termed a "psychological autopsy" [*3*]. The focus in this paper is on the process itself, how we distinguish between suicide and accidental deaths in cases that are equivocal.

An accident is an event that is not expected, foreseen, or intended. By contrast, suicide is defined as the act of killing oneself intentionally. When a person dies as a result of his or her own act, the distinction between accident and suicide depends upon the evaluation of that person's intention.

To "intend" is to have in mind as something to be accomplished; to purpose; to lean towards. Synonyms are to plan, to design, to purpose, to have a goal. Clinical research [*4,5*] has demonstrated that the purpose or goal of suicidal persons is not primarily to die, but rather they are trying to solve their problems in living; problems which are causing great pain and distress. *When one's own death is being used instrumentally to solve life's problems, we are talking about suicide.* The psychological autopsy is a procedure for evaluating after death what was on the victim's mind before death. We reconstruct a biography of the deceased person emphasizing such aspects as life-style, personality, recent stress, mental illness, and communication of death-oriented ideas, with special focus on the last days and hours. This information is gathered from personal documents, from records such as police, medical, and the Coroner's files, and from interviews with family, friends, work and school associates, and physicians.

There is some controversy about the standard of proof required in law for the certification

Received for publication 8 June 1988; revised manuscript received 23 Aug. 1988; accepted for publication 7 Sept. 1988.

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of suicide. Massello [6] emphasized the relevance of common law tradition. He stated the need for "clear and convincing" evidence for suicide which leads the Medical Examiner to a conclusion which is both "reasonable and probable." In 1985, the California Supreme Court [7] ruled that the standard of proof is "a preponderance of the evidence." There is suicidal intent "If the decedent is shown to have performed the self-destructive act with an understanding of its physical nature and consequences."

It has long been known that suicide statistics are subject to some uncertainty. Recently, the problems of improving validity and reliability of certifications of suicide were discussed by Jobes et al. [8,9] in considerable detail. The authors [9] included a statement of operational criteria for classification of a death as suicide developed by a Working Group on the Classification and Reporting of Suicide convened by the Center for Disease Control. First, there must be evidence that the death was self-inflicted. In addition, "there is evidence (explicit, implicit or both) that at the time of injury, the decedent understood the probable consequences of his or her actions." The most important indications of intent to die include the following: special preparations for death; expressions of farewell or the desire to die; expression of hopelessness; great emotional or physical pain or distress; precautions to avoid rescue; previous suicide attempts or threats; recent stressful events or losses; serious depression or mental disorder.

Five-Hundred Psychological Autopsies

I have reviewed 500 consecutive equivocal cases starting 1 July 1977 and continuing through May of 1985. The median year was 1981. As indicated in Table 1, compared with suicides, the equivocal cases are somewhat younger, less predominantly male, and there is a very significant bias in favor of including ingestion deaths and against including gunshot deaths. The reason for this is that after a routine investigation of ingestion deaths, the Coroner often has difficulty in evaluating the intention of the deceased, while by contrast, the great majority of self-inflicted gunshot wounds are quite clearly suicidal. The selection of cases by Coroners in the study period 1977 to 1985 is very similar to the cases selected in previous years such as in 1959 to 1961 [3] and in the 1960s [10].

Since 1960, the Suicide Prevention Center has been doing psychological autopsies on contract with the Coroner's office in Los Angeles. Between 60 and 65 cases are referred each year. The major reason for referral in all of these equivocal cases is a belief by the Deputy Coroner or Coroner or both that the available information acquired by the police and the

TABLE 1—*Comparison of 500 "equivocal suicide" cases (1977–1985) with 1106 suicides certified in 1981.*

	Equivocal	Suicides in 1981
Median age	35	39
Male sex	62%	71%
Gunshot injury	18%	49%
Lethal ingestion	54%	18%
Hanging	7.5%	16%
Jumping	4.4%	6%
Traffic fatality	4.4%	1%
Gas inhalation	2.4%	4%
Cutting-stabbing	0.6%	3%
All others (includes explosions, burns, drowning, malnutrition, suffocation, hit by train, unknown bleeding)	5.7%	3%

Coroner's investigators has been insufficient to clarify the case. The Coroner's office also is responsive to protests by families, and when family members seem to have been especially perturbed by the evidence for suicide, the cases will be referred to the Suicide Prevention Center sometimes as much for bereavement counseling as for additional investigation.

Table 2 indicates certain specific issues. Statistical significance was evaluated by chi square. The most frequent specific issue was the need for evaluation of the role of alcohol or drugs or both in an ingestion death. In about one third of the referrals, the Deputy Coroner was puzzled by a lack of an obvious motive for suicide in the information supplied to him.

Table 3 compares the Coroner's original opinions with the final Suicide Prevention Center recommendation in 500 equivocal cases. When the Coroner had expressed an original opinion of probable suicide or probable accident, we found sufficient new information to contradict the original opinion in about 5% of the cases. The principle contribution of the Center was to obtain additional information which allowed the undetermined cases to be assigned a certification, approximately two thirds of them as suicide and one third as accident. There were, however, 9 cases of the 500 in which we could not give an opinion other than "undetermined." Sometimes, this was because there simply was no more information, as in the case of a 19-year-old Mexican illegal worker who ingested poison. There was no way to determine whether or not he had known that the material he ingested was poison because there were no witnesses or anybody in the United States who knew the man. In several cases of mixed alcohol and drug ingestion which led to death, it was impossible to reach a decision between accident and suicide based on a preponderance of the evidence because the evidence was so evenly balanced that there was no preponderance.

The Decision Process

The decision process involved evaluating a number of factors, often including many pieces of information and sometimes constructing alternative scenarios or explanations which might account for the facts. Then the decision group, usually composed of both suicidolo-

TABLE 2—*Specific referral issues and eventual recommendation.*

Referral Issue	Percent of Total Referred	Percent of Suicides	Percent of Accidents	Significance, Chi^2
Alcohol problem	15.2	15	17	...
Drug problem	26.2	19.7	37.7	0.001
Mental illness	10.5	11.6	8.8	...
Family protest	28.6	36.4	13.2	0.001
No motive	32.3	24.1	47.8	0.001
No suicidal behavior	17.2	9.4	32.7	0.001
Not self-inflicted	2.4	3.1	1.3	...
Unusual case	2.4	2.8	3.8	...

TABLE 3—*Coroner's original opinions compared with final SPC recommendation (500 equivocal cases).*

	Original Opinion, %	Final Recommendation, %
Undetermined	64.1	1.8
Probable suicide	30.2	65.0
Probable accident	4.6	32.2
Natural/homicide	1.0	1.0

gists and Deputy Coroners, would decide which explanation was the most credible. The Chief Medical Examiner/Coroner takes responsibility for the final certification.

Table 4 indicates various factors that have been proposed as a basis for certifications. As could be expected, verbal and behavioral suicidal communications were extremely significant factors. Also significant was a history of recent stress, loss, or life change. Also significant were special efforts to procure the method of death and to secure privacy, as well as a history of past suicide attempts. A history of drug or alcohol abuse was significant only for the ingestion cases, pointing in those cases towards the possibility of accident. Blood alcohol levels are listed in Table 4, indicating that 17% of the suicides were intoxicated at the time of death. Decision factors varied in importance according to the method of death.

Ingestion Deaths

Table 5 indicates the special features of ingestion deaths, which compose more than half of the equivocal case referrals. In these cases, if narcotic drugs were present, it was more likely to be certified as accident. Similarly, if there was a history of drug abuse, the case was more likely to be certified as accident. There was a certain combination of features in ingestion cases that strongly suggested accident as follows: history of previous overdoses which were *not* suicide attempts; a careless, accident-prone life-style; no recent stress or loss or change; low amounts of drugs in the tissues; and, of course, a history of long-standing drug or alcohol abuse or both. By contrast, suicide was indicated by the following: suicidal communications; large amounts of drugs in the tissues; recent stress, loss, or change; history of depression or mental illness; responsible, stable life-style; and previous suicide attempts.

Accident victims were somewhat more likely to have a history of alcohol abuse than suicide cases. In over half of the ingestion deaths, there was some alcohol in the blood and this in itself did not distinguish between suicide and accident. People who use alcohol or drugs or both in large amounts are constantly at risk of an accidental overdose death. At the same time, their life-styles tend to alienate friends and families so they are involved repeatedly in stress/loss situations that activate ever-present thoughts of suicide.

For example, a 30-year-old man died of a combination of alcohol, valium, and tricyclic antidepressant, all of which were present in levels usually felt to be toxic but not lethal. He

TABLE 4—*Various factors proposed as basis for opinion compared with final opinion (500 cases).*

Item	Suicide (N = 323), %	Accident (N = 160), %	Signif. Chi^2
Physical evidence most important	7	10	...
Psychological evidence most important	55	54	...
Both equally important	38	36	...
Verbal suicidal communication: some or much	61	17	0.001
Behavioral communication: some or much	73	28	0.001
Recent significant stress/loss	71	28	0.001
Procurement effort considerable plus effort to secure secrecy and privacy	63	37	0.001
History of past suicide attempts	37	16	0.001
Alcohol in blood at death: none	70	72	...
under 0.10%	12	11	...
0.10-0.20%	10	10	...
over 0.20%	8	7	...
Stable personal history	31	35	...
Unstable personal history	37	29	...
History of significant mental illness	36	21	0.01

TABLE 5—*Features of ingestion deaths (270 cases).*

Item	Suicide (N = 175), %	Accident (N = 84), %	Signi. Chi²
Hypnotic/sedative drugs in blood	87	58	...
Mild tranquilizers present	38	39	...
Narcotic drugs present	19	35	0.01
Stimulant drugs present	9	7	...
Other drugs present	8	7	...
Drugs were prescribed medically	66	52	...
Drugs were illicit street drugs	21	26	...
History of alcohol abuse	34	51	0.05
History of drug abuse	47	86	0.001
Combination alcohol/drugs in blood	50	57	...
History previous overdoses which were *not* suicide attempts	21	77	0.001
Careless/accident prone life-style	37	86	0.001
No recent stress, loss or change	16	69	0.001
Recent significant stress, loss, or change	75	30	0.001
Low amounts of drugs in tissues	9	61	0.001
Large amount of drugs in tissues	92	32	0.001
History of depression, mental illness	83	59	0.001
Responsible, stable life-style	53	33	0.001
Subject was knowledgeable about drugs	95	95	...

was unemployed and had told friends that he intended to use up his savings in high living and then kill himself. At the time of his death, however, he still had several thousand dollars left in the bank. Although he was "suicidal," the psychological autopsy team evaluated the death as an accident because there had been no recent stress/loss/change. Another contributing reason was the fact that the deceased had said he would commit suicide by gunshot with his revolver, which was indeed available in his bedroom.

Drug abusers, like alcoholics, are subject to accidental fatal overdoses, and they also are high risks for suicide. In Los Angeles, codeine overdose continues to be a major cause of equivocal deaths [*11*]. For example, a 29-year-old nurse used codeine frequently as an all-purpose sedative/tranquilizer. She had a history of several codeine overdoses. Sometimes, when she recovered, she would say that she had wanted to die, and at other times, she would say that she had not wanted to die, she just wanted to be "out of it" for a while. Once, she told friends that she did not believe that codeine could kill her. After her boyfriend stood her up on a date, she ingested about 30 tablets of codeine (her entire supply), which proved fatal. The family vigorously protested the certification of suicide, pointing out that the deceased had said that codeine could not kill her. However, the psychological autopsy team was impressed by the large amount of narcotic drug, the ingestion of the entire supply, the recent stress, and the fact that the deceased had been chronically depressed and had, on a number of occasions, expressed a wish to die.

Gunshot Deaths

Table 6 indicates features of equivocal gunshot deaths. Of great interest is the fact that the location of the wound and the type of weapon did not discriminate between suicide and accident. A past history of carefulness in handling of guns was associated with suicide. Conversely, a history of careless handling of guns was associated with accident.

Recent stress, change, or loss was an important factor. Intoxication at the time of death was not a significant factor, since 34% of the suicides were intoxicated, as were 28% of the

TABLE 6—*Features of gunshot deaths (90 cases).*

Item	Suicide (N = 69), %	Accident (N = 19), %	Signi. Chi^2
Location of wound and type of weapon:			
head wound, temple	54	42	...
head wound, forehead	16	42	...
head wound, mouth	7	5	...
chest wound	16	5	...
abdomen	6	5	...
other	1	...	...
weapon: handgun	84	84	...
rifle	9	16	...
shotgun	7	...	...
Some effort needed to obtain weapon	27	15	...
Knowledgeable about guns	72	53	...
History of carelessness handling guns	15	67	0.001
History of carefulness handling guns	60	17	0.001
No recent stress, loss, or change	23	84	0.001
Acutely intoxicated at death	34	28	...
Acutely psychotic at death	8	5	...
Little experience with guns	42	53	...
Known to handle guns carelessly	24	63	0.05
Careful person, non-risk taker	69	53	...
Recent stress, loss, change	76	17	0.001
No intoxication or drugs at death	53	75	...
No evidence of psychosis or severe depression	74	100	0.05
Subject was known to be careful with guns	78	31	0.01
Type of wound and weapon is important in decision	88	0	0.001

accidents. Alcoholics tolerate high alcohol blood levels [*12*], retaining the ability to plan and carry out complex sequential actions as part of intentional self-destruction.

The Coroner referred 90 equivocal gunshot deaths for investigation. Nineteen of these were recommended for the certification "accident." These cases could be classified into three groups. The first group included victims who were playing with guns they thought were not loaded.

First Group

Example 1—Mr. F., age 22, white, was not depressed or under stress, and he had plans for the future. He was a chronic risk-taker and a specialist in "quick draws." He would often point a revolver at his head in front of other people to scare them or impress them, and he would pull the trigger on an empty chamber. On this occasion, he did this trick in front of his brother and the gun discharged.

Example 2—Mr. C. was a 45-year-old white, male, alcoholic gun collector. During an argument in a bar, he went outside to his car to get his handgun. He brought the gun into the bar. When the bartender objected, Mr. C. said to him, "See, the gun is empty." He then put the gun to his head and pulled the trigger, and the gun discharged.

Example 3—Ms. A., female, white, age 18, with her teenage sister, used to play with their father's revolver, which was "never loaded." However, it had been loaded recently, unknown to the girls. Ms. A. picked up the gun, told her sister, "You know it's not loaded," put it to her head, and pulled the trigger.

Second Group

In the second group, the victims knew the gun was loaded but death was not intended.

Example 4—Mr. G., age 45, white, a male police officer, was known to be a jokester and an ex-alcoholic who liked to play with his guns, for instance, to use a pistol to smooth his hair. This particular day, his partner, a female officer, said she had to go to the dentist, and, as a joke, to register dismay at the news, Mr. G. put the gun to his temple, but the gun discharged, killing him.

Example 5—Mr. D. was a 51-year-old male, white, alcoholic, who, for the most part, had been living a conservative and stable life. On this evening, however, he became intoxicated. He got into a fight with his elderly father about why his father did not love him more, and impulsively walked out, got a handgun, and pointed it towards himself in front of his father. The wound was not a contact wound, and the bullet almost missed his head completely, but it did penetrate the dura and produced considerable hemmorhage, together with slight brain damage. A full month later, while seemingly on the road to recovery, in the hospital, the patient died suddenly of ingested vomitus.

Third Group

The third group of deaths were reported by investigators as "Russian Roulette" deaths in which the victim placed one bullet in a revolver, pointed the gun at his head, and fired it without knowing the location of the bullet. In the past, we certified all such deaths as suicide, as does the Dade County Medical Examiner's office [*13*], but other suicidologists have disagreed on the grounds that in some cases, the victim has it in mind to survive and prove something rather than to die.

Example 6—N., an 18-year-old Vietnamese male, lived with his parents in Los Angeles. He was doing average work at school, with no known personal or emotional problems. He was described as a fun-loving person who liked to party and had never talked of death or suicide. One night, he was drinking beer in a parking lot with three friends and he pulled a gun from his pocket, pointing it in various directions. The friends told him to put the gun away. Mr. N. took one bullet from his pocket, put it in the cylinder of the revolver, closed the cylinder and spun it, then pointed the gun at his head and pulled the trigger. The alcohol level in his blood was 0.10%. The gun belonged to his older brother and had been taken without the brother's knowledge or permission. The police found one expended round in the gun and two unfired bullets in Mr. N's pocket. Friends said that when he pulled the trigger, Mr. N. was laughing. Half of the members of the Coroner's team reviewing this case were of the opinion that Mr. N. did not understand or believe that his action could cause his death. I disagreed and in addition, pointed out the great difficulties in calling this death "accidental" (unexpected, unforeseen, unpredictable) unless the deceased was actually convinced (mistakenly) that he knew where the bullet was located. The final certification assigned this case was suicide/accident undetermined.

Hanging Deaths

There were two types of hanging accidents (Table 7). Some of the deaths were labeled accidental deaths by "sexual asphyxia" [*14*]. In these cases, there was some evidence that the deceased had customarily achieved partial asphyxia by a noose or by some sort of hanging apparatus as part of a masturbation ritual. It is known that partial asphyxia increases the erection and ejaculation pleasure in some people. What is not so well known is how easy it is for pressure on the neck to cause unconsciousness, in which case, the person whose neck is in the noose will slump against the binding and cut off the airway, leading to asphyxia and death. There are, on the average, one or two such deaths in Los Angeles every year.

TABLE 7—*Features of hanging deaths (37 cases).*

Item	Suicide, (N = 23), %	Accident, (N = 11), %	Signi. Chi^2
Effort to obtain privacy	48	56	...
Subject played with nooses	10	56	0.05
Subject was under age 15	37	36	...
Hanging images or pictures	16	9	...
Sexual asphyxia death	6	45	0.05
Communication of suicidal intent	55	0	0.05
Recent stress or change	83	22	0.01
History of previous suicide attempts	17.4	0	...
Felt trapped or failed	90	11	0.001
History of serious depression	68	11	0.01

The other type of accidental hanging occurred with young boys, who had been playing cops and robbers or cowboys with ropes. Of the hanging suicides, two thirds had a history of noticeable depression and 90% were at a point in their lives where they felt they had failed in something important or they were trapped in an untenable situation.

Mental Illness

Families often raise the question of mental disorder as a reason for certifying deaths as something other than suicide. Families say, "If he (the deceased) had been in his right mind, he would never have done a thing like that." I have discussed the issue of "insanity" interfering with the ability to intend suicide in two recent papers [*15,16*]. In the landmark decision, *Searle v. Allstate* [*7*], the California Supreme Court stated that insane people all through history have committed suicide, so the issue of insanity is not relevant. The essential psychological feature of suicide is that the person understood that his or her self-destructive action could reasonably be expected to end his or her physical existence.

In these 500 equivocal cases, the concept of mental incompetence (caused, for example, by serious mental illness) interfering with the ability of the deceased to understand that his or her action would result in death did not emerge as an issue, except with regard to children. In general, a history of mental illness was more closely associated with suicide than with accident, but in the ingestion category, there were many persons who were clinically depressed or alcoholic (or both) whose deaths were accidental.

Discussion

Over a period of many years, the Deputy Coroners in the Los Angeles Office have had no difficulty in finding clear and convincing evidence for making a decision (suicide or accident) in the great majority of self-inflicted deaths. This is especially true of self-inflicted gunshot wounds which account for about half of the suicides and very few accidents. In a relatively small number of cases (about 5 to 10% of the suicides), the initial evidence is equivocal, usually because the available information is insufficient or incomplete. More than half of the equivocal cases involve lethal ingestion, usually of multiple substances. Certain traffic fatalities and some drownings are often felt to be equivocal. These cases require a special investigation, which has been termed a psychological autopsy. Usually, the additional information helps to clarify intention so that it is possible to arrive at a reasonable decision based upon a preponderance of the evidence. Sometimes, the staff attempts to construct an explanation of the facts through two or more alternative scenarios. The case is presented to a staff confer-

ence, and a vote is taken in order to reach a consensus. Very few cases are given the final certification of suicide/accident/undetermined.

A suicidologist/consultant can be helpful to a Medical Examiner/Coroner's office by specifying the standards for deciding between suicide and accident certifications and by helping to educate the Coroner's staff in the interpretation of these standards. Suicidologists can be helpful in training the Coroner's investigators, especially since bereavement counseling may be an important aspect of these investigations when a family has suffered the loss of a member through suicide. Finally, it is helpful to have a suicidologist on the decision panel when certain unusual cases, such as automobile suicides, swimming pool drownings, and hangings in children are being considered.

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