

The Problem of Determining the Manner of Death as Suicide or Accident in Borderline Cases

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Summary. The purpose of this study was to check the reliability of the classification of death in cases regarded primarily as accidents or undetermined. The material used for the analysis consisted of the documents of autopsies performed at our department in 1981. There were altogether 283 cases of suicides, accidents or undetermined deaths, accounting for 8.4% of total mortality, and of these 180 cases were of the two last categories. In 125 cases primarily regarded as non-suicides (accidents or undetermined) there were some features of suicide leading to reclassification as probable suicide in 24 cases. Fifteen of these were primarily poisoning “accidents”, mainly alcohol intoxications. The result indicates that the suicide rate would be 3.7% instead of 3.0% of the total mortality.

It may thus be concluded that the official figure for suicides could be as much as 18.9% smaller than the “actual” figure.

Key words: Suicide – Self-inflicted injury – Manner of death, suicide or accident

Zusammenfassung. Die Studie soll die Zuverlässigkeit der Klassifikation von Todesfällen überprüfen, die primär als Unfälle oder als nicht näher bestimmbar angesehen wurden. Es liegen 283 Fälle von Suizid, Unfall oder unauferklärter Todesart vor (8,4% der Gesamtmortalität); 180 Fälle betreffen die beiden letztgenannten Kategorien. Das Ausgangsmaterial entspricht dem Obduktionsgut des Institutes im Jahre 1981. Unter 125 Fällen, die zuerst als Unfälle oder unklassifizierbar galten, führten Hinweise auf ein Suizidgeschehen in 24 Fällen zu einer entsprechenden Reklassifizierung. Fünfzehn Fälle (hauptsächlich Alkoholintoxikationen) wurden zunächst als Vergiftungsunfälle betrachtet. Dies führte zu dem Resultat, daß Suizid in 3,7% und nicht in 3,0% aller Todesfälle vorlag.

Die Analyse führt zu der Schlußfolgerung, daß die offizielle Zahl der Suizide 18,9% geringer sein könnte als die aktuelle Angabe.

Schlüsselwörter: Todesart, Klassifikation – Suizid oder Unfall

Introduction

According to the international classification of disease (8th revision), the premise for determining a death as suicide is that the person has purposely harmed himself. This purpose is searched for during both police and medical investigations. Difficulties arise in the classification if the case history is vague and/or the circumstances of death point to either suicide or an accident. Usually the "milder" manner, i.e. accident, is chosen and the number of undetermined cases is kept as low as possible. This has probably led to a situation in which some suicides are actually classified as accidents or undetermined.

The purpose of this study was to analyze a material of accidental and undetermined deaths from 1 year to get further information on the exact classification of the deaths and find the proportion of "hidden" suicides among these.

Such knowledge is needed when a forensic pathologist makes the final judgement in individual cases. Determination of the correct manner of death is important especially for the payment of insurance compensation, since the rules often include clause excluding suicide for some time after the date of signing the contract.

Material and Methods

The material consisted of autopsied cases classified primarily as suicides, accidents, or undetermined deaths which had occurred in the province of Oulu, Finland, in 1981. The total population at that time was 421,450, and total mortality 3,365. There were 103 suicides, 151 accidents, and 29 undetermined cases, totalling 283, which was 8.4% of the total mortality (Fig. 1). The official suicide rate was thus 3.0%. The documents used for collecting the data were the orders and reports on the necropsy filed by the police, dispatches by the local physicians who had performed the external inspection of the body, the necropsy protocols, and the hospital records of those cases which had been treated previously.

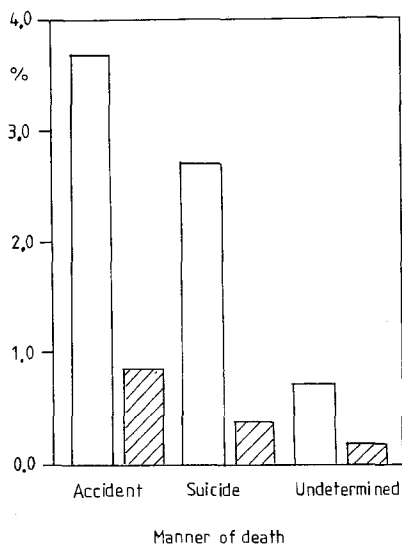


Fig. 1. Deaths classified primarily as suicides, accidents, or undetermined in the province of Oulu in 1981. The percentages are calculated from total mortality. □ Male; ▨ female

Table 1. Distribution of accidents and undetermined deaths in the material into three groups after re-evaluation of the case histories

	Primary classification					
	Accident		Undetermined		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
I Definite accidents having no possibility of suicide	46	30.5	9	31.0	55	30.6
II Possible suicides	91	60.3	10	34.5	101	56.1
III Probable suicides	14	9.3	10	34.5	24	13.3
Total	151	100.0	29	100.0	180	100.0

The deaths classified as suicides were used to obtain information on general features of suicides and the background to such cases. The most common method of suicide by males was hanging (47.5%) and for females poisoning (38.5%). The average age of the males was 41.8 years (range: 15–87 years) and that of the females 37.0 years (range: 18–80 years). The persons who had hanged or poisoned themselves were significantly older than those who had shot themselves or blown themselves up. Of the last mentioned cases, 80.0% were below 35 years. Psychiatric treatment had been given to 32.7%, and these were more often unmarried or divorced and had more often chosen poisoning.

To assess the probability of suicide in cases which had originally been classified as accidents or undetermined, but which had some features of suicide in them, the cases were reviewed again and grouped into definite accidents, possible suicides and probable suicides (Table 1). A case was considered as probable suicide if the person had caused the death himself or clearly contributed to the mechanism of death and the situation as a whole was such that death was to be expected. Heavy drinking, distinct alcoholism, abuse of drugs, problems with mental health, psychiatric treatment, and other serious illnesses were regarded as speaking for suicide. If the case was such that there was no evidence of suicide, but suicide could not be excluded with certainty on the basis of the available documents, the death was considered a possible suicide.

The international classification of causes of death, 8th revision from the year 1969, was used for reference in the analysis [1], Student's *t*-test and the χ^2 independence test were used when checking the hypotheses.

Results

The total number of cases having some features of suicide was 125, consisting of 105 classified primarily as accidents and 20 as undetermined deaths (Table 1). The number of probable suicides reached 24, was comprising 9.3% of the primary accidents (14 cases) and 34.4% of those classified as undetermined (ten cases). Of the probable suicides 33.3% (eight cases) were primarily classified as poisoning accidents and 25.0% (six cases) as undetermined ones under the E definition (E 980–989) "when suspected whether an accident or an intentional act" (Table 2). The total proportion of poisonings among the probable suicides was 62.5% (15 cases), of which 53.3% (eight cases) were alcohol intoxications (Table 3).

Of the traffic deaths, three cases were taken as probable suicides, being collisions in which the subject had driven his motorbike or car into a lorry or

Table 2. Accidents and undetermined cases having no features of suicide (NS), possible suicides (PS) and probable suicides (PrS) among deaths primarily classified as accidents or undetermined

Primary classification	E definition	NS	PS	PrS	Total
<i>Accidents</i>					
Traffic	807–846	24	25	3	52
Poisoning	859–877	–	29	8	37
Falling	880–887	15	–	–	15
Fire	890–899	–	9	1	10
Natural circumstances	900–909	1	6	–	7
Others	910–939	6	17	–	23
Accidents or intentional	980–989	–	5	2	7
	Total	46	91	14	151
<i>Undetermined</i>					
Traffic	807–846	–	–	2	2
Falling	880–887	1	1	–	2
Fire	890–899	–	2	–	2
Other	910–939	4	2	1	7
Suicide or other self-inflicted	950–959	–	–	1	1
Homicide	960–969	1	–	–	1
Police act	970–978	1	–	–	1
Accidents or intentional	980–989	2	5	6	13
	Total	9	10	10	29

Table 3. Probable suicides among poisoning deaths and the total number of poisoning cases primarily classified as accidents or undetermined deaths

	Total		Probable suicide	
	<i>n</i>	%	<i>n</i>	%
<i>Accidents</i>				
Alcohol intoxication	42	80.8	8	53.3
Other poisonings	2	3.8	2	13.3
Undetermined poisoning deaths	8	15.4	5	33.3
Total	52	100.0	15	100.0

walked in front of a car. Two cases of “traffic accidents” which had been classified as undetermined were drownings, one of which had occurred after the subject had jumped from a train. Psychiatric treatment, suicide threats, cancer and heavy drinking were the background factors in these cases.

The largest groups of probable suicides were accidental alcohol poisonings and carbon monoxide poisonings. Chronic alcoholism, or drinking large amounts alone, e.g. about one liter of brandy within a few hours of half a liter

of vodka rapidly, were background factors. In addition, suicide threats, depression, psychiatric treatment, previous alcohol poisoning or severe illness (cancer), and family quarrels were mentioned in the histories.

One fire death was regarded as a probable suicide with background factors of suicide threats and heavy drinking in a group. The fire had started from a sauna stove, however, which argued against suicide. In addition, one case where hanging was suspected was regarded as a probable suicide. Suicidal thoughts in the anamnesis and the style of death pointed to hanging, but the deceased had been found a long time after death and the cause remained unknown.

One undetermined case had been placed under the E definition "suicide or other selfinflicted damage", and the cause of death being poisoning with two drugs (thioridazine and diazepam). This case was again considered a probable suicide. The rest of the probable suicides had been placed under the E definition "when suspected whether accident or intentional act". Two cases had been classified primarily as accidents and six as undetermined. Two of the undetermined ones were drownings and the others poisonings. The case histories involved previous intoxications and abuse of drugs, use of ersatz alcohol, depression, or psychiatric treatment.

Possible suicides, classified primarily as accidents or undetermined, consisted of traffic or poisoning deaths, fires, falls, and other deaths placed under the E definition "when suspected whether accident or intentional act". These also included one subject found dead of unknown cause. Here heavy drinking, unfavorable circumstances and dangerous children's play fit in with suicide although no actual factors suggesting an intentional act were found. Deaths from asphyxia due to aspiration of stomach contents after alcohol abuse were regarded as improbable suicides since the mechanism of death did not fit with intentional death.

Discussion

When deciding the manner of death, the person responsible for the autopsy is usually dependent on the police investigation and the report of the physician who inspected the body, and the practice has been that only those cases have been classified as suicides in which the information has been convincing, while the others with some uncertainty in their history have been classified as accidents or undetermined. Determining the manner of death as accident or suicide and estimating both the intention of the act and the proportion of self-inflictment is of great importance to the relatives when dealing with insurance compensation questions. Despite thorough preliminary investigations, it may nevertheless be impossible to detect all suicides objectively where the person has not expressed his intentions. Finnish life insurance contracts usually contain a 3-year safety period so that if a suicide is committed during that period no compensation is paid to the relatives. Compensation is paid, however, if the person was under 15 years or was receiving medical treatment because of mental illness when committing suicide. In cases of accidental poisonings, there is no extra

compensation with respect to accidental death, whereas for other accidental deaths compensation is paid even if the subject was under the influence of alcohol or drugs. These terms are laid down in the law governing insurance contracts.

In a previous study from Finland [2] it appeared that the classification of deaths as undetermined had reduced the official figure for suicides by 6%. The estimated figure from the present analysis was slightly greater, since of the 29 undetermined deaths ten were regarded as probable suicides. Thus, the official figure for suicides could be as much as 8.8% too low. In addition, 14 of the 151 primary accidents in the material were regarded as probable suicides. When these 24 cases are taken into consideration, the number of the "actual" suicides would increase to 127, which is 3.7% of the total mortality. Thus, the official figure may be said to be 18.9% too low.

An analysis of suicide statistics in New York [3] shows the underestimation there to be even greater. Suicides among the black population were underestimated by 80% and those among whites by 42%. The factor most responsible for the greater understatement of black suicide rates seemed to be the different methods that blacks and whites used for committing suicide. The whites preferred shooting, hanging, and poisoning, which were more easily classified as suicides. According to one theory a difference between males and females in terms of the frequency of suicides could also follow from the use of violent, and thus reliable, methods by males [4]. Our results fit in with this idea, since the frequency of suicides by males was 7 times that in females and almost one half of the suicides by males were hangings, while the most frequent method chosen by females was poisoning. On the other hand, males are seemingly more prone to suicide in any case.

In a study on firearm deaths in the USA [5] the largest group of accidental deaths had occurred when playing with firearms, and the group also included cases of Russian roulette which the author regarded as suicidal actions. In the present study, there was only one accident and one undetermined case among the firearm deaths which could be considered as possible suicides, but even here careless handling of the gun was evident and neither was regarded as a probable suicide. The problem group in the present material consisted of the poisoning deaths.

The number of deaths due to poisoning in a year in Finland is about 600, of which 50% are alcohol intoxication, 35% due to drugs and 12% gas. Most alcohol poisonings have been regarded as accidental, and about 25% of the other poisoning deaths as accidents, 65% as suicides, and 10% as undetermined [6]. In a previous follow-up study of acute self-poisonings it was noticed that 54% of the patients admitted to the emergency clinic behaved in a suicidal manner later [7]. The large number of patients acting suicidally among the self-poisoning cases argues that the actual number of suicides among the poisoning deaths could be greater than is generally thought. The number of poisoning deaths in the present study among the deaths classified primarily as accidents or undetermined was 52, of which 80.8% were due to alcohol. The proportion of probable suicides among the poisoning deaths classified primarily as accidents or undetermined was 28.8%, which accounted for 62.5% of the total probable suicide

cases. It has been postulated that the increasing consumption of alcohol is one reason for increasing numbers of suicides, traffic accidents, drownings, poisonings, and homicides in Finland [8]. On the other hand, it has been observed that the blood alcohol concentration is lower in suicides than in accidents, and can be considered less important in the suicide mechanism, while habitual heavy drinking is seen in cases of accidental ethanol intoxications [9]. According to the present results alcohol poisonings cannot automatically be regarded as accidents. The great proportion of undetermined poisonings depicts the difficulty in distinguishing between accidents and suicides, especially if people are in the habit of drinking heavily.

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