

Suicide classification—clues and their use

A study of 122 cases of suicide and undetermined manner of death

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Abstract

In order to identify clues to forensic pathologist's classification of suicide, the forensic files of 100 consecutive cases of suicide, and 22 cases of undetermined manner of death, were analysed. Some specific causes of death, suicidal communication and other circumstantial evidence suggesting suicidal intent explained all but three classifications. Problematic cases concerned death by poisoning and by submersion, alcohol-dependent persons and subjects with positive blood alcohol concentration at autopsy. Guidelines to support the police investigation as well as the medico-legal examination can probably reduce the number of undetermined cases in cases of possible suicide.

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1. Introduction

A correct classification of manner of death is important for the next-of-kins, for insurance issues, for research and for public health policies based on cause-of-death statistics. There is however, a considerable variation as to how these assessments are made [1–3]. A consistent finding is that suicide is under-reported [4–8] but in lack of a golden standard [9], it is not always clear if the re-evaluations are based on additional information or on better judgement.

In Sweden, the police is to be notified if a person has or may have died an unnatural death. In such cases, the police is expected to request a medico-legal autopsy. The cause of and manner of death are determined exclusively by forensic pathologists in public service. The death is to be classified as natural, self-intended, intentionally caused by another, accidental or undetermined. Further, if there is “nothing

implying intent”, an unnatural death is to be recorded as an accident. Undetermined manner of death (“open verdict” in Anglo-Saxon terminology) is certified when it is impossible to decide if the death was intentional or accidental. In contrast to the Scandinavian model, the manner of death in Anglo-Saxon jurisdictions is decided upon by a coroner in a public process where the criterion for designating a death as suicide is stricter; intent is to be “beyond reasonable doubt” [3].

The purpose of this study is to analyse which clues that appear most determinant for forensic pathologists in certifying suicide. There is no intention to disclose the “true” rate of suicide, i.e. the validity, but rather the expert decision making process itself, similar to the method applied by Salib [10].

2. Material

The study comprises a consecutive series of subjects who were (i) autopsied at the Institute of Forensic Medicine in Umeå from September 1983 through December 1985, (ii)

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residing in Västerbottens County (245,181 inhabitants in 1984), and (iii) who's death was certified as suicide ($n = 100$) or as undetermined manner of death ($n = 22$).

The total number of medico-legal autopsies among deaths within the county was 791 during the investigation period, and the mean annual incidence of suicide and undetermined cases was 17.5/100,000 and 4/100,000, respectively. Two pathologists were responsible for all deliberations. The assessment procedure was not standardised.

Observed variables were age and gender of the deceased, previous suicide attempts, a previously recorded diagnosis of mental disorder, alcohol-dependency, suicidal communication, circumstantial evidence suggesting suicide intent (e.g. procedures to assure that death follows, use of more than one potentially harmful means, deflection from daily routines and behaviour), blood (BAC) and urine-alcohol concentrations (conducted routinely) and results of toxicological screening (performed on suspicion). Auxiliary information, apart from routine data collection, was not retrieved.

The term alcohol-dependency has been applied to cases where (a) the forensic pathologist used the term "chronic alcoholism" in the death certificate, and/or (b) the deceased was diagnosed or described as an alcoholic in medical records and/or police reports, and/or (c) hepatic cirrhosis and/or steatosis was found and no other explanation than high alcohol consumption was at hand.

3. Method

The 100 suicide cases were compared with the 22 undetermined cases with regard to cause of death according to ICD-9 [11]. A comparison was then made between those who had died by the same cause of death but where the manner of death was classified differently. Test of significance was performed by χ^2 -test and logistic regression techniques.

4. Results

Ninety-one of the 122 subjects were males (75%). The suicides comprised 75 males (75%) and there were 16 males (73%) among the undetermined cases. The mean age of the male suicides was 45 years (range 18–87) and 48 years (range 31–63) of the male undetermined cases. Corresponding figures for females were 39 years (range 18–66) and 56 years (range 41–70), respectively.

In 31 of the 100 suicides, the blood alcohol test was positive (mean 1.7 g/l; range 0.3–5.9) and in 16 of the 22 undetermined cases (mean 2.7 g/l; range 0.3–5.0).

All cases where the deceased had died by hanging, by firearms, by explosives or by jumping from a height were classified as suicide (Table 1). No suicide was recorded among persons who had died by poisoning due to ethanol, methanol or thinner. In the 34 cases with poisoning by

Table 1
Cause of death related to manner of death in 122 cases of suicide and undetermined death

Cause of death	Manner of death		
	Suicide	Undetermined	Total
Hanging	38	0	38
Injury by firearms	18	0	18
Injury by explosives	2	0	2
Jumping/fall from a height	2	0	2
Submersion			
Been seen jumping into water	4	0	4
With a weight tied to the body	3	0	3
Other circumstances	5	3	8
Poisoning			
Exhausts into the car cabin by a hose	6	0	6
Exhausts in a closed garage	1	1	2
Ethanol	0	9	9
Methanol or thinner	0	2	2
Licit drugs other than alcohol	13	1	14
Ethanol + other licit drugs	6	3	9
Hypothermia	1	2	3
Combustion	1	1	2
Total	100	22	122

ethanol and/or other drugs, 19 were classified as suicides and 15 as undetermined cases.

A psychiatric diagnosis, a suicide note and/or verbal suicidal messages after the fatal intoxication was seen in the suicide group only (Table 2). Nine of 10 subjects with alcohol-dependency but without concomitant mental disorder were declared undetermined cases, as were all cases testing positive for alcohol but negative for other drugs.

Ninety-nine percent of the suicides and 83% of the undetermined cases could retrospectively be singled out by one or more of three kinds of information: (i) specific cause of death; (ii) written or verbal expressions of suicidal intent; and (iii) other circumstantial evidence suggesting suicidal intent (Table 3).

5. Discussion

This study confirms previous findings that uncertainty in the classification of manner of death is linked to certain causes of death as poisoning [6,8,10,12–15] and drowning [6–8,10,12,14,15], absence of suicidal communication [7,10,12,13] and lack of circumstantial evidence suggestive of suicidal intent [6,13].

Many ambiguous cases concerned persons with alcohol-dependency, testing positive for alcohol at autopsy, and who died by poisoning. As a rule, such cases are regularly characterised by the dearth of current suicidal communica-

Table 2

Death by poisoning with solid or liquid substances classified as suicide ($n = 19$) and undetermined manner of death ($n = 15$) related to suicidal communication, suicide attempts, concomitant disorders and type of intoxication

	Manner of death	
	Suicide ($n = 19$)	Undetermined ($n = 15$)
Suicidal communication		
Only a suicide note	4	0
Suicide note + verbal suicidal messages	3	0
Verbal suicidal messages	8	1
No suicidal communication	4	14
Previous suicide attempt(s)		
Concomitant disorders	8	1
No alcohol-dependency or mental disorder	5	1
Mental disorder	10	0
Alcohol-dependency	1	10
Alcohol-dependency and mental disorder	3	4
Positive BAC at autopsy	6	14
Only positive BAC	0	9
Only other dependency inducing solvents	0	2
Only non-dependency inducing drugs	13	1
Positive BAC + dependency inducing drugs	1	3
Positive BAC + non-dependency inducing drugs	5	0

tion and circumstantial evidence. It is obvious that since both suicide and death by poisoning [16] are common outcomes among alcohol-dependent persons, the share of undetermined rulings in forensic cases relate to their share of all persons who are subjected to a forensic examination due to unnatural death.

The significance of previous suicide attempts and a formal psychiatric history in determining the manner of death is unclear and two studies from UK have shown that this kind of information was not associated with a suicide classification [10,12]. Psychiatric files can provide information about parasuicidal behaviour and should thus be retrieved in uncertain cases. However, earlier events without

immediate association to the demise should, according to our opinion, not be allowed to affect the classification. The vast majority of persons who are or have been psychiatric patients [17–19] or who have made suicide attempts [18,20,21] do not commit suicide. If such generally acknowledged suicide risk factors become decisive for the classification, over-reporting of suicide may ensue which would bias further studies of these factors in suicide. We favour a suicide classification based upon what a suicide intention has initiated, not upon what might have initiated a suicidal intention.

The relative incompatibility of the medico-legal procedures of determining manner of death between jurisdictions

Table 3

Three clues with the highest explanatory value in determining manner of death among 122 cases of suicide and undetermined deaths

Cause of death always linked to suicide	Verbal suicide message and/or suicide note	Implicit or indirect evidence of intent to die	Manner of death	
			Suicide	Undetermined
+	+	+	23	0
+	+	–	9	0
+	–	+	19	0
+	–	–	22	0
–	+	+	16	2 ^a
–	+	–	4	0
–	–	+	6	0
–	–	–	1 ^a	20
Total			100	22

^a Cases that deviated from the found decision-making pattern of the forensic pathologists.

[1,22–25] render the evaluation of international suicide statistics difficult. Greater uniformity, consistency and transparency in the classification of suicide is thus desirable and we support the efforts to construct internationally applicable guidelines for certifying suicide [26]. Nevertheless, there will always remain a number of undetermined rulings [8,27], if scientific and intellectual honesty is to be maintained. The concept of suicide is not self-evident [28] and the only persons who can give solid evidence on the issue of intent are dead. Ambivalence is a prominent feature of a suicide process [8] and some of those who die by unnatural causes may not even be clear themselves about their intent at death.

Guidelines do not help if the primary data collection is of poor quality and they should apply to all phases of the investigation of an unnatural death. In this study, we noticed that some police reports were briefer and took premature stands when the circumstances of a death strongly implied suicide, e.g. by expressions like: “she had tied a rope to . . .” instead of “she was found hanging by a rope tied to . . .”. A good teamwork between the police and forensic pathologists is thus of crucial importance not only to reduce the number of undetermined cases but also to secure that the subsequent specified classification of manner of death is correct [27].

Only two pathologists were involved in this study which mirrors the actual situation in Sweden and some other countries; the decision of a limited number of professionals have a major impact on suicide classification and death statistics. The coroner/jury system involves many more assessors, for good and for worse. It seems likely that the process of improving the quality of death statistics is easier, the fewer people who need to be redirected.

5.1. Validity

This is a community-based study covering more than 2 years of forensic practice. The cases occurred during the 1980s, but the problems of suicide classification are not subjected to major changes over time [9], even though it is likely that the problems of death by poisoning with illegal drugs have increased, especially in urban areas.

No inquires were posed to the pathologists about the decision-making process but we used an indirect method in order to understand the classification. We did not record informal information that might have influenced the decisions, e.g. telephone calls from significant others, the forensic pathologist’s observations at the scene, verbal statements from police or passages in psychiatric files that were not copied.

6. Conclusion

The difficulties in determining manner of death in possible suicides are linked to certain causes of death, in particular poisoning. This cause of death is most common among people with alcohol problems where the circum-

stances pertaining to the death are, as a rule, unclear and suicide notes rarely exist. Operational criteria for designating a death “suicide” can be helpful given that the quality of the primary data collection is good. There will always be uncertain cases.

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