

Case report

“I am flying to the stars”—Suicide by aircraft in Germany

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Abstract

In 2006, 67 persons were killed in aircraft accidents in Germany and involving German aircrafts abroad. In spite of extensive investigation of each aircraft accident, there are no reliable data as to the number of suicides by aircraft. We report on a 50-year-old man who committed suicide by willfully crashing his Beech “Sierra” aircraft minutes after take off from an airport close to the town of Rendsburg, Germany. Before killing himself, the intoxicated pilot had sent an SMS announcing his suicide plans to a friend. The findings of the medico-legal investigation and the results of a review of aircraft accident reports by the German Federal Bureau of Aircraft Accidents Investigation (BFU) regarding suicidal plane crashes are presented.

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1. Introduction

In 2006, 255 aircraft accidents (excluding aerial sports equipment, including commercial airliners) with a total of 67 fatally injured victims in the Federal Republic of Germany or involving German aircraft worldwide were recorded and assessed by the German Federal Bureau of Aircraft Accidents Investigation (Bundesstelle für Flugunfalluntersuchung, BFU), a federal agency for the investigation of aircraft accidents and incidents [1]. Most accidents affected single engine airplanes with a maximum take off weight of 2 tons; a total of 103 small plane accidents with 16 casualties were recorded by the BFU in 2006. 84 of those accidents took place in Germany, 21 persons were killed.

Even though airplane crashes are thoroughly investigated and statistically recorded, there are hardly any reliable data on the number of suicides by aircraft in Germany. In addition to case reports in international scientific magazines and the popular press [2,3], some authors have conducted comprehensive analyses of suicidal airplane “accidents” [4–6]. However, these investigations refer to the United States only. According

to these studies, less than 0.5% of all fatal aircraft crashes are due to suicides. Comparable data for European and other countries are not available. The relevant literature comprises some case studies – mainly of spectacular occurrences – at the most [7–9]. This may in part be due to the fact that in Europe – compared to the United States – there are less small private planes, an aircraft type most commonly used as suicide “weapon”. Furthermore, there are obvious difficulties in distinguishing suicidal action from mere human errors in cases where technical reasons for a crash have been ruled out.

In this work, we present a verified suicide by aircraft. In addition, a review of aircraft accident reports published by the BFU regarding suicidal plane crashes is given.

2. Case report

2.1. History

In March of 2007, a 50-year-old man was fatally injured when his single engine low wing propeller aircraft – a Beech BE24R “Sierra” (Fig. 1) – crashed just minutes after take off from a local airfield close to the town of Rendsburg, Germany. The pilot had a medical certificate of fitness and held private pilot’s licenses for airplanes as well as helicopters. He was authorized to fly small airplanes as well as Hughes 269

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Fig. 1. Low wing propeller aircraft Beech BE24R "Sierra".

helicopters according to visual flight rules (VFR) and had more than 190 h of flight experience. His helicopter rating had not been appropriately renewed, thus his flying privileges for helicopters had expired 4 months ago. The man started the aircraft without prior communication with the airfield's tower, efforts of the tower personnel to contact the pilot by radio communication failed. After take off, the plane disappeared into the clouds. According to witnesses, the aircraft reappeared minutes later at a longitudinal angle of 60° and with full motor power, and hit the ground nose down close to the runway it had taken off from. The plane was completely destroyed, debris was found in a radius of 120 m (400 ft) from the center of impact, a 1-m (3.3 ft) deep crater (Fig. 2). The pilot, who was not buckled up, was catapulted out of the cockpit. The body was found some 110 m (360 ft) away from the plane wreckage. During the flight the pilot had sent an SMS stating "I am flying to the stars . . ." to a friend.

The inspection of the wreckage of the 33-year-old plane revealed no technical problems. At the time of the occurrence, weather conditions were in accordance with visual flight

rules with 8 km (5 miles) visibility, a closed ceiling at 305 m (1000 ft) above ground and southwesterly winds between 5 and 10 knots (10–20 km/h). The crash was classified as a suicide by the BFU and the district attorney. The motive for the suicide remained unclear.

2.2. Autopsy results

At autopsy, external examination revealed gross destruction of head, trunk and extremities of the deceased (Fig. 3) with traumatic decerebration, opening of the thoracic and abdominal cavities with intestinal prolapse, and traumatic amputation of the right foot. The skin of the back was extensively detached. Internal examination showed fractures of cranium, skull base, cervical, thoracic and lumbar vertebrae, pelvis and the long bones of all extremities. All internal organs including esophagus and intestines were ruptured, aorta and pulmonary arteries showed multiple lacerations. Larynx, epicardium and visceral pleura showed numerous petechiae. As cause of death, a multiple trauma of head, trunk and extremities was diagnosed. Identity of the body was confirmed by dental identification.

2.3. Toxicological analysis

Quantitative blood analysis by high-pressure liquid chromatography (HPLC) revealed a diphenhydramine blood concentration of 0.14 mg/l (therapeutic blood concentrations: 0.05–0.1 mg/l; comatose/fatal blood concentrations: 5–10 mg/l according to [10]). A carbon monoxide blood concentration of 7% was measured photometrically. Additional determination of the blood alcohol concentration by enzymatic procedures (ADH) and gas chromatography revealed no ethanol.



Fig. 2. Crash site. The pilot's body can be seen in the background covered with a black tarpaulin.



Fig. 3. The body of the pilot at autopsy.

3. Results of further research and discussion

The results of the review of aircraft accident reports issued by the BFU based on accident investigations conducted from 1974 until 2007 are shown in Table 1. Over the reviewed period of 34 years, 9 (suspected or confirmed) suicides by aircraft with 18 fatalities were found.

Suicide by aircraft seems to be a rare event in Germany considering the incidence of only 9 cases over a period of 34 years (0.3 suicides per year). In contrast, in Germany in 2006, 9765 deaths (7225 males and 2540 females) were declared suicides [11]. In the years 1974–2006, the number of persons killed in aircraft accidents in Germany totaled 3058 with an average of 93 fatalities per year, a maximum of 177 fatalities in 2001 and a minimum of 43 fatalities in 2004 [1 and unpublished data of the BFU]. Based on these numbers, the fraction of suicide-associated deaths among aircraft crashes is as low as 0.6%, a figure that is consistent with the results of other studies [5]. In comparison, the fraction of suicides committed by using

an easily available automobile in road traffic lies between 2.5% and 4.5% of all fatal traffic accidents [12–14].

However, the differentiation between a plane crash with the intention of committing suicide and a mere accident is difficult in many cases. A suicide note or other evidence of suicide is rarely found; the case reported here seems to be an exception. Sometimes the autopsy may result in findings that hint at a suicide, like the intoxication of the pilot. But in the end, the diagnosis “suicide by aircraft” is one of elimination, e.g. of technical failure, a sudden disease related incapacitation of the pilot, etc. Thus, the number of unrecognized cases may be substantially higher than our review of accident reports suggests.

All of the suicides identified in our review of accident reports were males. This is in accordance with the study by Bills et al. [4] and may be due to the preponderance of “successful” male suicides in general [11] as well as the fact that men choose more violent suicide methods than women [11,15]. The average age of male suicides in Germany in 2006 was 54.7 years [11], which is consistent with the age distribution of aircraft-assisted

Table 1

Confirmed or suspected suicides by aircraft in Germany from 1974 to 2007 based on a review of the respective BFU aircraft accident reports

No.	Year	Fatalities	Age and gender of pilot	Type of incidence (according to BFU)	Toxicology	Flight phase
1	1974	1	29 years, male	Suicide	BAC 0.05	Cruise flight
2	1984	5	52 years, male	Crime (stabbing) ^a	Negative	Final landing approach
3	1984	1	68 years, male	Suicide suspected	Negative	Cruise flight
4	1987	2	61 years, male	Suicide suspected	Negative	Final landing approach
5	1988	1	57 years, male	Suicide suspected	n/a	Cruise flight
6	1988	2	44 years, male	Suicide	Negative	Final landing approach
7	1996	4	47 years, male	Crime (shooting) ^a	Negative	Cruise flight
8	2003	1	54 years, male	Suicide suspected	Negative	Cruise flight
9	2007	1	50 years, male	Suicide ^b	Diphenhydramine 0.14 mg/l	Cruise flight

BAC: blood alcohol concentration in g/dl; n/a: not available.

^a Pilot incapacitated by passenger.

^b Case reported in this work.

suicides listed in Table 1 (average age 51.3 years). Thus, there are no age differences between suicides in general and aircraft-assisted suicides in Germany.

The results of the autopsy described in this work are largely comparable to the morphological findings of other authors. Hellerich and Pollak [16] also found an extensive detachment of the skin, petechiae of serous membranes and an extensive destruction of visceral organs when examining the victims of a similar high-velocity impact of a single engine aircraft close to Freiburg, Germany. However, in contrast to our findings, the victims of the Freiburg plane crash were severely dismembered and body parts were scattered within a radius of about 50 m (160 ft).

In the case presented here (case number 9 in Table 1), the pilot was mildly intoxicated. Toxicological analysis revealed a diphenhydramine blood concentration of 0.14 mg/l. Other drugs or ethanol were not detected by gas chromatography. Even though slightly above the therapeutic level of 0.1 mg/l, the diphenhydramine level was well below the toxic range of 1–2 mg/l [10]. A central effect of this sedative in form of drowsiness may be presumed. Table 1 shows the results of the toxicological analyses of the pilots in cases of suspected and confirmed aircraft-assisted suicides. All cases except 1 and 9 – the case discussed above – were negative for drugs and alcohol (for case number 5, no data were available). In case number 1, a low blood alcohol concentration (BAC) of 0.05 g/dl was detected. Other authors found illicit drugs and/or alcohol in 38% [4] and 50% [5] of the cases.

One unexpected result of our review of accident reports was that in 4 out of 9 cases more than one person occupied the aircraft used for suicide at the time of the crash. In cases 4 and 6, the aircraft crash was presumably caused by the pilot with the respective passenger as an additional victim. A similar case has previously been described only by Goldney [9]. The cases 2 and 7 – published as case studies by Kleiber [7] and Günther et al. [8], respectively – are the result of the incapacitation of the pilot, who was stabbed (case 2) or shot (case 7) by a passenger during flight. In these cases of homicide–suicides, the pilot was rather the victim than the perpetrator.

This work shows that aircraft-assisted suicide in Germany is an uncommon and rare event. The number of cases determined in this investigation is in accordance with the relevant literature. However, the actual number of these events may be higher than reported due to difficulties in distinguishing accidents from suicides. Interestingly, the fraction of homicide–suicides in aircraft-assisted suicides in our collective is rather high with

four out of nine cases. The number of intoxicated pilots is low compared to other studies, whereas the fact that solely men used aircraft as a means of suicide is in accordance with other investigations [4–6].

The case presented here was ruled a suicide by the district attorney's office and classified as such by the BFU – in part because of the suicide note – and bears some of the typical features of aircraft-assisted suicides discussed above. However, in many cases, a definite differentiation between accident and suicide may not be possible. Hence, the dark figure may be considerable.

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