

Original Article

Air Disasters and Mortality in Pakistan

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ABSTRACT

Objective: To study the mortality in air disasters in Pakistan.**Study Design:** Original study.**Place and Duration of Study:** This study was conducted in the Department of Forensic Medicine, Frontier Medical & Dental College, Abbottabad and Fountain University Medical College, Rawalpindi from January 2009 to November 2012.**Materials and Methods:** The mortality data was collected from Internet, Civil Aviation Authority, Newspapers and research journals.**Results:** The results are shown in tables and graphs.**Conclusion:** The air disasters are one of the significant cause of mortality.**Suggestion:** The factors responsible for air disasters should be minimized to reduce mortality.**Key Words:** Disaster, Mortality, Aviation, air craft.

INTRODUCTION

An Air Disaster is defined by the Convention on International Civil Aviation Annex 13 as an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which a person is fatally or seriously injured, the aircraft sustains damage or structural failure or the aircraft is missing or is completely inaccessible¹

Types of Aviation accidents²:

The following are different types of aviation accidents.

- Accidents involving privately owned aircraft.
- Accidents involving small commercial aircraft.
- Accidents involving medical transport helicopters
- Accidents involving military aircraft
- Major airline disasters

Causes of Aviation Accidents³:

1. **Human Error:** The most common cause of aviation accidents is human error, usually by the pilot (53% of all accidents) or other person (8% of all accidents.) Although the error made by the pilot usually occurs during the flight or whilst taxiing on the runway, other errors occur outside the aircraft, for example during maintenance work, fuelling, or while loading the aircraft. The Federal Aviation Administration of every country controls air traffic through the Air Traffic Control System, or ATC. If there is a question as to whether an air traffic controller may have been at fault, e.g. after a mid-air collision, then it may be that the US Government is liable for damages.

2. **Mechanical Failure:** One in every five aviation accidents is as a result of some sort of mechanical failure, whether the problem arises from the aircraft, its equipment or one particular part. In other cases, the mechanical failure can be a contributory factor in the outcome of the accident, once there has been some kind of human error. Equipment can fail, there can be structural or design problems and if the aircraft is not maintained or repaired properly these can also contribute to an aviation accident.
3. **Weather & Sabotage:** Other causes of aviation accidents include weather conditions and sabotage (shoot-downs, hijackings, and bombs.) Although weather can make air travel hazardous, it is often the case that the actions of people or failures in mechanical systems are also contributory causes to the accident.

MATERIALS AND METHODS

The data was collected from internet, newspapers, civil aviation records and research journals. The data contains the details of air disasters and mortality associated with it. Beginning from 1965 to April 20th, 2012. (n=15)

RESULTS:

A time span of nearly half a century (47 years) contains fifteen air disasters of Pakistani aviation industry, both civil and military air travels. The most unfortunate years for Pakistani aviation history were 2010 and 2003, with 3 and 2 air disasters occurring, respectively. The total number of deaths in fifteen air disasters was 953 out of 994 (95.8%) as shown in table No. 4.

table No. 1: Place of Death After Aviation Accident

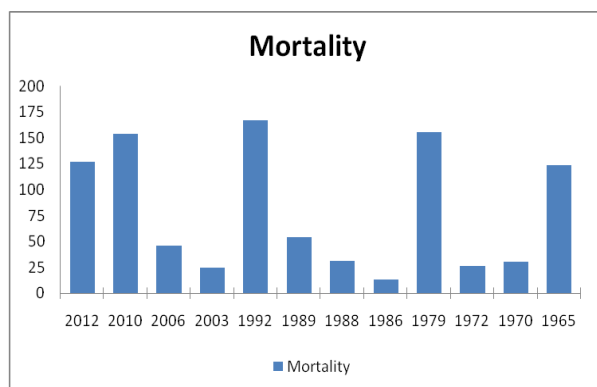
Sr. No.	Place of death	%age
1.	On the spot / before help arrival	86 %
2.	Hospital	14%

Table No. 2: Pattern of Aviation Injuries Resulting in Death⁴

Sr.No.	Type of Injury sustained	Percentage
1.	Multiple injuries	42%
2.	Head injury	22%
3.	Internal injury of thorax, abdomen, or pelvis	12%
4.	Burns	4%
5.	Drowning	3%

Table No. 3: Cause of Death on the Spot

Sr.No.	Type of Injury	Percentage
1	Single injury	18%
2	Head injury only	27%
3	Blunt injuries	41%

**Figure No.1: Mortality****Table No. 4: Details of Aviation Accidents In Pakistan**

Sr. No	Year	Flight No.	Number of passengers	Mortality			Percentage of mortality
				Male	Female	Total	
1	2012	Airbus 737	130	72	55	127	97%
2	2010	Ilyushin 76	12	12	00	12	100%
3	2010	JS Air	21	21	00	21	100%
4	2010	Airblue Airbus 321	121	96	25	121	100%
5	2006	Fokker F 27	46	36	10	46	100%
6	2003	Cessna 402-b	08	08	00	08	100%
7	2003	Fokker f-27	17	16	01	17	100%
8	1992	Airbus A-300	167	--	--	167	100%
9	1989	Fokker	54	--	--	54	100%
10	1988	Hercules C-130	31	--	--	31	100%
11	1986	Fokker F27	54	--	--	13	24.1%
12	1979	Boeing 707	156	--	--	156	100%
13	1972	Fokker F27	26	--	--	26	100%
14	1970	Fokker F27	30	--	--	30	100%
15	1965	Boeing 707	124	103	21	124	100%
Total Passengers			994	Total Deaths:		953	95.8%

DISCUSSION

In the air disasters history of Pakistan, 953 deaths took place among the 994 passengers aboard (95.8%) on ill fated aircrafts. This reveals a relatively low survival rate of the passengers, implicating the gross inadequacy of safety measures installed in aircrafts. The average mortality was 63.3% in fifteen disasters, that is, nearly two thirds of passengers lost their lives. In most of the disasters, the mortality was 100%. The most crashes involved Fokker F27 aircrafts⁶, the use of which was continued to air crash of 2006, and involved one of top brass of Pakistan army, the (Late) Air Marshall Mushaf Ali Mir. By far, the largest air disaster happened in 1992, with the loss of 167 lives.

The mortalities occurring due to air crashes follow an expected pattern. More than three fourth (86%) of the people sustaining injuries, died on the spot, or before the help arrived⁴. The most notorious injury causing death was blunt injury, as sustained from rapid

deceleration, killing nearly half (41%) of people who died on the spot⁴. The next major factor was injuries inflicted on head⁴.

Among those who died after some time, the most frequent cause of death was the presence of multiple injuries. Head injury remains a significant (22%) cause of death in this category⁴. Another reported cause of deaths (12%) is internal injuries to thorax, abdomen and pelvis. This may be attributed to blood loss, injuries to vital organs, or failure to ascertain the presence of internal bleeding, when faced with mass casualty and over burdened health professionals. At the end, the average percentage of mortality (63.3%) is much higher as compared to international air disaster mortalities.

CONCLUSION

The air disasters mortality can be minimized by following safety measures.

1. Improving search and rescue systems.

2. Improving fire-fighting and emergency medical systems.
3. Improving technical standards for aircraft and equipment safety.
4. Collecting information on aircraft safety and improvement of processing systems.
5. Improving aircraft inspection systems.
6. Improving aircraft maintenance examination systems.
7. Improving measures for aging aircraft.
8. Improving safety standards for transportation of hazardous materials.
9. Improving aviation accident investigations.
10. Improving meteorological information for air transport.
11. Strengthening supervision system for air transport companies.
12. Shifting emphasis to preventive safety administration.
13. Improving the skills of aviation workers.

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