Aug 14th, 1:15 PM - 2:45 PM

Differences in the Severity of General Aviation Accidents by Age: A Preliminary Examination

Brandi N. Drye
The Citadel, bdrye@citadel.edu

Karina Mesarosova
University of Zilina, km@flightresearch.eu

Robert Walton
Embry-Riddle Aeronautical University - Worldwide, waltonr@erau.edu

P. Michael Politano
The Citadel, politanom@citadel.edu

Follow this and additional works at: https://commons.erau.edu/ntas

https://commons.erau.edu/ntas/2017/presentations/12

This Presentation is brought to you for free and open access by the Conferences at Scholarly Commons. It has been accepted for inclusion in National Training Aircraft Symposium (NTAS) by an authorized administrator of Scholarly Commons. For more information, please contact commons@erau.edu.
Differences in the severity of aviation accidents by age: A preliminary examination

1Drye, B. N., 2Mesarosova, K., 3Walton, R. O., and 1Politano, P. M.

1The Citadel; 2University of Zilina; 3Embry-Riddle Aeronautical University
“I’m the schmuck that landed on the taxi way”

• 74 year old Harrison Ford (Star Wars star) told FAA after landing on a taxiway at John Wayne Airport in Orange County, California (in February 2017)

• Was this incident age related?
Background

• Research examined age issues with pilots
• Industry continues to deal with pilot shortages
  • Allowing older pilots to fly past mandatory retirement age could reduce the impact
  • However, this brings up the question of flight safety, and if older pilots are indeed a risk.

• Purpose: Examine differences in the severity of accidents by age
More Background

• Limited literature on the subject
• Most concerned with acute incapacitation
  • But age related mental and physical declines need to also be considered
• Problem is that everyone ages differently and at different rates
Methods

- NTSB aviation accident and incident database (1982 – 2014)
- Accidents separated by Commercial and General Aviation (fixed wing)
  - Excluded home built aircraft, helicopters, gliders...
  - 74,686 total entries in data set
  - 7,203 commercial
  - 61,363 GA accidents
- Damage to the aircraft and injury of crew/passengers as a function of pilot age was examined separately using ANOVA for commercial and GA
Results

• Commercial
  • male pilots 97.4%, (mean age = 41.75, (SD=10.88)
  • Female pilots 2.6%, (mean age of 43.51, (SD=9.71)
    • Ages were significantly different, t(7009)=8.76, p<.001

• GA
  • Males 91.8%
  • Females at 3.7% (4.5% missing)
  • Average age for pilots was 45.29 (SD=14.63)
Results

• Commercial operations
  • Damage levels of none, minor, substantial, and destroyed produced a significant difference by age, $F(3, 7197)=40.558$, $p<.001$
  • All levels were significantly different with the exception of none and minor
  • Age decreased across the levels of damage from an average of $43.38$ for none to $39.76$ for destroyed
  • Highest level for damage was substantial, making up $47.26\%$ of reports with an average age of $40.75$

• GA
  • Damage level was also significant, $F(3,60302)=4.06$, $p=.007$
  • Significant differences between no damage and substantial ($p=.001$) and destroyed ($p=.005$) but no other levels
Discussions/Conclusions

• Study indicated that there are differences in the degree of damage related to aviation accidents based on age.

• Additional examination of the causes of accidents, and at what age the increase is observed, is needed to ensure aviation safety for aging pilots.