

UNDERSTANDING RISK-TAKING PROPENSITY: AN INVESTIGATION EXAMINING DIFFERENCES BETWEEN MEMBERS OF THE GENERAL POPULATION AND PILOTS

YASSMIN EBRAHIM, BRETT MOLESWORTH, & OLEKSANDRA MOLLOY

School of Aviation, University of New South Wales, Sydney, Australia.

E-mail: y.ebrahim@unsw.edu.au; b.molesworth@unsw.edu.au; o.molloy@unsw.edu.au

Background: How pilots make decisions, and their propensity for risk can affect the safety of a flight. Research has identified differences in personality traits between pilots and the general population (Chapelle, et al, 2010). Whether these differences extend to risk propensity remains unknown, and hence, the primary focus of this research. The current research also evaluates existing personality scales examining risk propensity which predict pilots' risky flight behavior. **Aim:** The primary objective of the research is to investigate if pilots differ in terms of risk propensity from members of the general population. The secondary objective is to assess the validity of known risk propensity scales in predicting risky flight behavior with pilots, using a low-level risky flight scenario in a flight simulator. **Method:** Two groups were recruited, 100 general population participants and 17 pilots. Both groups completed personality and risk scales such as the Big 5, Sensation Seeking Scale (SSS), with additional aviation specific scales for pilots, including Hunter's Risk Perception Scale 1 and 2. Risky flight behavior was measured through a low-level flight task. Minimum altitude descended featured as the dependent variable (visual flight rules state minimum altitude permitted over non-populated areas is 500ft). Pilots who flew higher were deemed to be more risk averse than pilots who flew lower. **Results:** The results of the comparison between members of the general population and pilots indicated the general population had a lower propensity than the pilots to engage in risky behavior, as identified through the Thrill and Adventure seeking factor on the SSS. The results relating to the predictive validity of the risk scales and flight performance revealed the Evaluation of Visual Analogue Risk (EVAR) scale total score factor and the Openness factor on the Big 5 scale account for 64% of pilots' risky behavior, meaning pilots who were more risk prone on the scales spent more time at a higher altitude compared to pilots who measured low on these two factors. These results suggest pilots who were riskier on the psychometric scales were risk averse in their flight behavior than pilots who were risk averse on the scales. **Significance:** The results of the study join a small group of research which found in high risk-taking sports, or safety critical professions, that propensity to engage in risk is inversely related to risky behavior. In a practical application for the aviation industry, the findings have important implications for training and recruitment of pilots throughout aviation.

Keywords: Risk-taking, pilots, aviation, safety, human factors, personality

References

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