

Study suggests many general aviation pilots downplay the impact of stress on flight safety

New research highlights the importance of gathering information to assess the situation

by [Eric W. Dolan](#) — January 23, 2021 in [Aviation Psychology and Human Factors](#)



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New research published in the journal *Aviation Psychology and Applied Human Factors* provides insight into how general aviation pilots assess and manage different types of risk.

“I have a particular interest in aviation, partially because my father was a military pilot, and partially due to the complex and high-risk aviation environment,” said study author Amy L. Irwin, a lecturer at the University of Aberdeen.

“There has been a wealth of research examining safety, risk and non-technical skills with commercial pilots, but research investigating general aviation pilots is relatively thin on the ground.”

“In particular we were very keen to examine attitudes towards risk, and decision-making processes, specific to take-off decisions from a general aviation perspective – as the context and constraints relevant to general aviation pilots (many of whom fly as a hobby) are very different from those experienced by commercial pilots,” Irwin explained.

The researchers presented 101 general aviation pilots with 12 go/no-go take-off decisions and asked them to describe why they would or would not proceed in each scenario. For example, the pilots were asked whether they would proceed or not “when you notice thunderstorm clouds forming on the horizon in the direction of your flight.”

The 12 scenarios were based on accident and incident reports, as well as safety recommendations from various aviation organizations.

When it came to suffering from an illness, having equipment failure or missing a seatbelt, the researchers found that pilots tended to make a “no-go” decision. When it came to missing sunglasses, missing a checklist or being stressed, on the other hand, pilots were more inclined to make a “go” decision.

Many pilots highlighted the importance of gathering more information before making their decision. When presented with the thunderstorm scenario, one pilot remarked: “I would check the weather radar and forecast with a view to planning a safe route around them before taking off.”

“General aviation pilots considered risks associated with take-off decisions carefully, and often reported risk mitigation strategies (such as altering a planned route to avoid bad weather) that would allow them to manage the risk in order to fly,” Irwin told PsyPost.

“Gathering information and assessing the situation was key, and indicates the importance of situation awareness as a non-technical skill for general aviation pilots – highlighting the importance of training in this skill for pilots. However, not all risks were considered equal with some risks, such as stress, considered less likely to impact flight safety than others.”

Rather than worry about the potential for stress-related errors during flight, several pilot suggested that taking to the skies would help alleviate their condition. “I find flying stresses

very different to work ones, almost relaxation via a different kind of stress,” one pilot told the researchers.

“This suggests the need for further training, or awareness, about the potential adverse impact of stress on flight performance and safety,” Irwin said.

But, as with all research, the study includes some caveats.

“The data gathered in the study came from UK pilots only – and so this data might not apply to pilots flying in Europe, the US or other countries. Further research with a broader range of pilots is needed in order to generalize these findings,” Irwin explained.

“It would also be interesting to explore further the interaction between general aviation pilots, who often fly alone, and key ground staff, such as aircraft maintenance and air traffic control. These interactions may influence decision-making processes and add a further dimension to the current research.”

“General aviation is the largest aviation category – encompassing all areas of civil aviation,” Irwin added. “It is also the most dangerous – in 2016 general aviation accounted for 78% of air accidents in the UK. This highlights the importance of further applied research in this area, so we can work together to improve safety for all GA pilots.”

The study, “[Flying Solo: A Vignette-Based Examination of General Aviation Pilot Risk Perception and Decision-Making](#)”, was authored by Amy Irwin, Nejc Sedlar, and Oliver Hamlet.

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