

## Two pilots may be safer than one: The effect of group discussion on perceived invulnerability.

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### Abstract

Although most general aviation (GA) pilots have received training in aviation decision making, one of the most common causes of GA accidents remains a pilot's decision to press-on with a flight, when the safe decision was to turn back or divert (Federal Aviation Authority, 2002). Presumably, pilots press-on because they assume it is safe to do so, rather than because they are foolhardy. One reason pilots press-on may be because they underestimate the inherent risks. Indeed, research into the area of perceived invulnerability (PI) suggests that many pilots perceive themselves to be invulnerable to negative outcomes and that this predicts the kinds of behaviour likely to increase the chance of accident or incident (Isenberg, 1986).

For more than 40 years, psychologists have been aware that decisions made by groups of people tend to polarise the views of individuals (O'Hare & Smitheram, 1995). Thus, if individuals make decisions that are risky, the decisions made in groups will tend to be more risky than those made by individuals. In aviation, this has potentially serious implications for flights where there are two pilots rather than one, because if individual pilots' are susceptible to PI, then when there are two pilots PI may increase.

Data collected earlier (Lee & Gilbey, 2010), which in a preliminary analysis found no effect of group polarisation on PI, was reanalysed to investigate whether an effect of group polarisation would be observed when both members of a pair of pilots exhibit PI. (Previously, all pilots had been included, regardless of whether they exhibited PI.)

The sample were seventy-eight GA pilots, recruited from seven different flight training organisations in the North Island of New Zealand (14 female, 64 male; ages 18 to 59 years ( $M = 25.94$ ,  $SD = 7.86$ ) flight experience ranged from 30 minutes to 5,000 hours ( $Mean = 662.38$  hours,  $SD = 895.13$  hours). A within-subjects design was used, in which participants completed two equivalent measures of PI; once alone, and once in pairs, following discussion.

Significant evidence of PI was found for all pilots when measured alone,  $t(77) = 8.54$ ,  $p < 0.001$  and also when measured in pairs, following discussion,  $t(77) = 8.92$ ,  $p < 0.001$ . Next, unlike in our previous analysis (Lee & Gilbey, 2010), the nine pairs of participants in which one pilot did not demonstrate PI were excluded from all further analyses. (In hindsight, it was considered illogical to expect PI to be polarised following group discussion if it was not evident in individuals at the outset.) Remaining participants were allocated into two groups based upon a median split of their PI scores when measured alone ( $>5.8 =$  high PI and  $\leq 5.8 =$  low PI). A 2x2 ANOVA indicated a main effect of group polarisation on PI,  $F(1, 58) = 5.24$ ,  $p = .026$  ( $M_{\text{alone}} = 6.24$ ,  $SD = 1.03$ ;  $M_{\text{group}} = 6.01$ ,  $SD = .96$ ) and an interaction between manipulation (alone vs. group) and PI score in the control condition (low vs. high)  $F(1, 58) = 7.42$ ,  $p = .009$ . Contrary to predictions, pilots with the higher levels of PI when alone showed a reduction in PI when measured in groups.

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The implications of the current study, suggest that perceived invulnerability in GA may be less of a problem when two (or more) pilots fly together, than when they fly alone. Future research could thus investigate accident reports to investigate whether lone pilots are more likely than two pilots to be involved in accidents or incidents where PI was a contributing factor. The findings of this study are reassuring regarding commercial flight operations, where normally there will be two pilots.

## References

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