

Hogan Safety Competencies: How do Pilots and the Australian General Population Compare?

2012



Introduction

Hogan used archival data to analyse how Pilots and the Australian general population compared when rated on six key competencies included in the Hogan Safety report. The samples used in the present study had previously completed the Hogan Personality Inventory (HPI) as part of a selection/development exercise. The aim of the study was to show that (a) people working in a safety critical environment generally have a higher safety oriented personality profile and (b) the Hogan Safety Report is a suitable assessment to help select people into a safety critical role. When making a selection decision the focus should be on ratings in the 'Moderate Strength' and 'Strength' categories and this paper shows that Pilots consistently scored higher in these categories.

Analysis

3,769 Pilots and 5,384 people from the Australian general population (AUS General Pop) were compared on six safety related competencies outlined below:

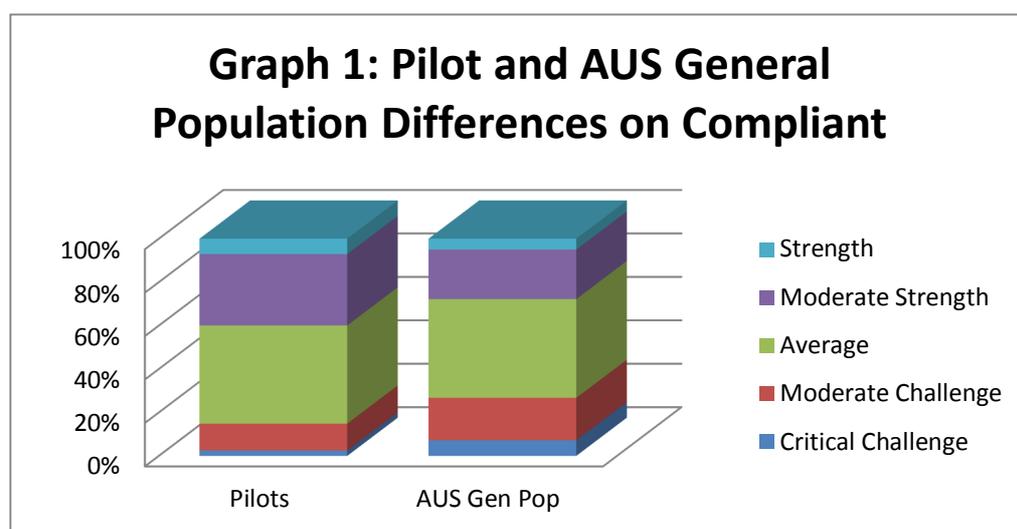
- **Defiant - Compliant:** Low scorers ignore authority and company rules. High scorers willingly follow rules and guidelines.
- **Panicky - Strong:** Low scorers tend to panic under pressure and make mistakes. High scorers are steady under pressure.
- **Irritable – Cheerful:** Low scorers lose their tempers and then make mistakes. High scorers control their tempers.
- **Distractible - Vigilant:** Low scorers are easily distracted and then make mistakes. High scorers stay focused on the task at hand.
- **Reckless - Cautious:** Low scorers tend to take unnecessary risks. High scorers evaluate their options before making risky decisions.
- **Arrogant - Trainable:** Low scorers overestimate their competency and are hard to train. High scorers listen to advice and like to learn.

Scores on each of the above safety competencies were rated on a 5-point rating scale ranging from 'critical challenge' to 'strength'. Graphs 1 to 6 show the percentage of each rating for Pilots and the AUS General Pop. The six safety competencies were then combined to create an 'overall safety' score, and these results are depicted in Graph 7. Finally, the Pilot group and the AUS General Pop were compared on the six safety competencies and the overall safety score to understand which group had the higher overall safety profile.

Results

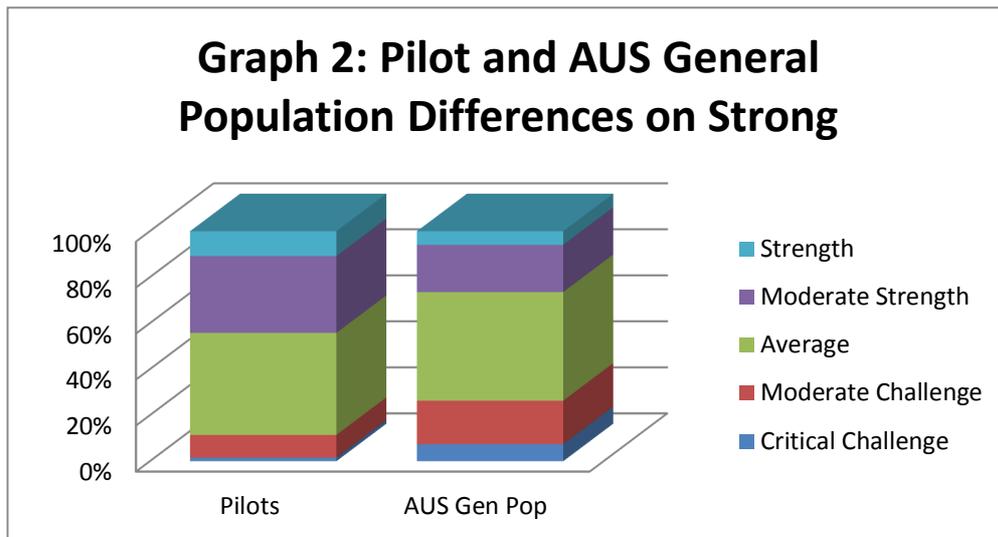
Defiant - Compliant: *Low scorers ignore authority and company rules. High scorers willingly follow rules and guidelines.*

Graph 1 shows that a greater percentage of Pilots fall into the 'moderate strength' and 'strength' categories when compared to the AUS General Pop, indicating that Pilots are more likely to follow the specified rules and guidelines which is appropriate given that Pilots are in control of an aircraft. This finding is appropriate given that they have responsibility for following and applying rules to ensure compliance with manufacturers and regulators requirements. Pilots must also display the ability to think through potential consequences of their actions.



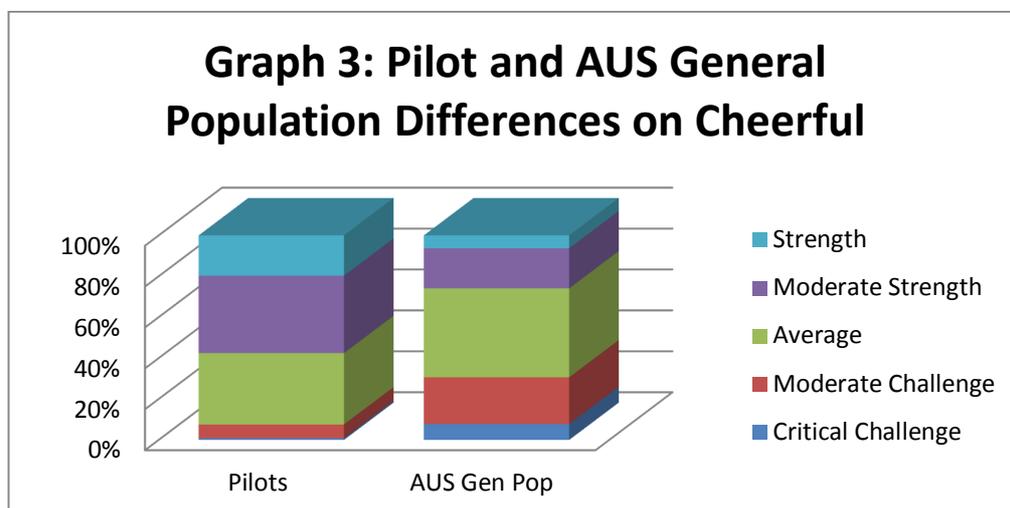
Panicky - Strong: *Low scorers tend to panic under pressure and make mistakes. High scorers are steady under pressure.*

Graph 2 shows that a greater percentage of Pilots scored in the ‘moderate strength’ and ‘strength’ categories when compared to the AUS General Pop, indicating that Pilots are more likely to remain steady under pressure. A smaller percentage of Pilots had a ‘critical challenge’ on the Strong competency compared to the AUS General Pop, indicating that the AUS General Pop is more likely to panic under pressure and less self-confident than the Pilots. This finding is appropriate given that in command they are required to be calm, self confident and display leadership under pressure.



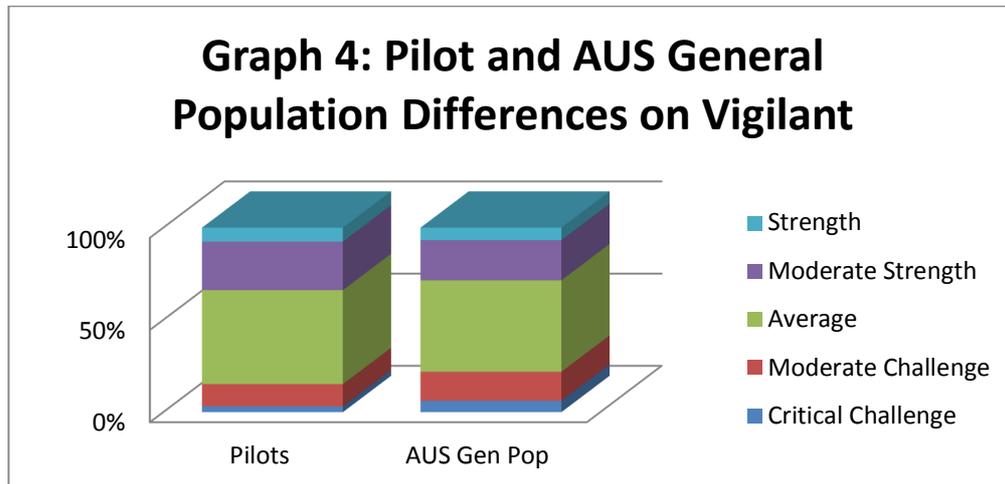
Irritable – Cheerful: *Low scorers lose their tempers and then make mistakes. High scorers control their tempers.*

Graph 3 shows that a greater percentage of Pilots scored in the ‘moderate strength’ and ‘strength’ categories when compared to the AUS General Pop, indicating that the former group is more likely to control their tempers when under stress, fatigue and/or pressure. This finding is important because Pilots are required to have high stress tolerance to ensure they project a calm and dependable demeanour.



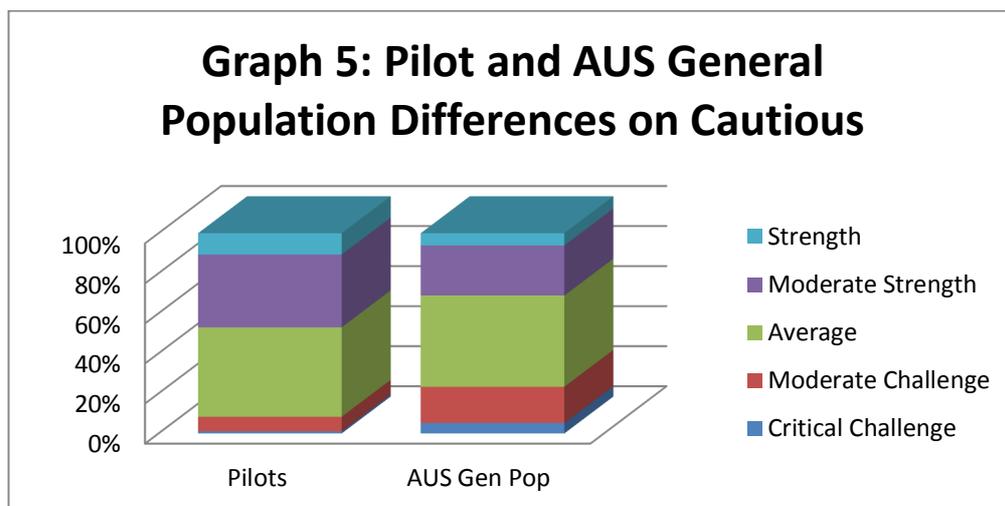
Distractible - Vigilant: *Low scorers are easily distracted and then make mistakes. High scorers stay focused on the task at hand.*

Graph 4 shows that a greater percentage of Pilots scored in the 'moderate strength' and 'strength' categories compared the AUS General Pop, indicating that they are more likely to stay focused on the task at hand. This finding is appropriate given vigilance is an important part of the role.



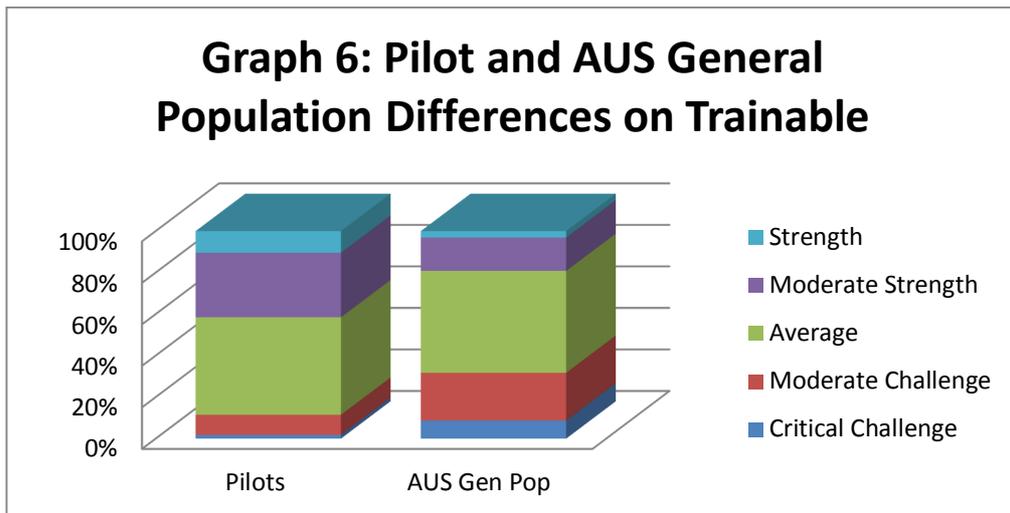
Reckless - Cautious: *Low scorers tend to take unnecessary risks. High scorers evaluate their options before making risky decisions.*

Graph 5 shows that a greater percentage of Pilots scored in the 'moderate strength' and 'strength' categories compared to the AUS General Pop, indicating that Pilots are more likely to evaluate their options when making risky decisions. This finding is particularly appropriate as Pilots need to minimise risk taking, identify potential consequences, and not make impulsive decisions to improve error management.



Arrogant - Trainable: *Low scorers overestimate their competency and are hard to train. High scorers listen to advice and like to learn.*

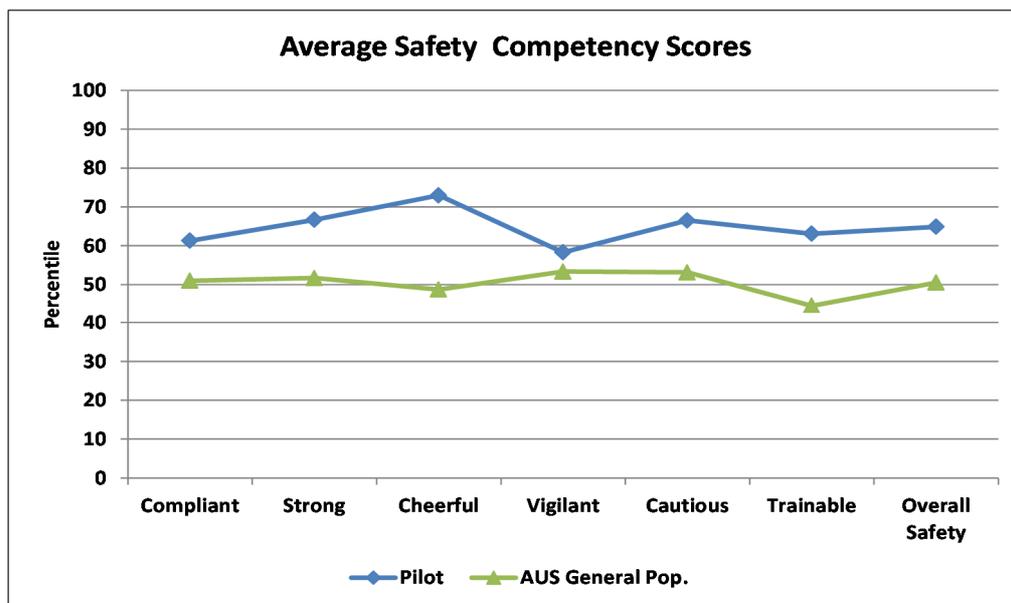
Graph 6 shows that a greater percentage of Pilots scored in the 'moderate strength' and 'strength' categories compared to the AUS General Pop, indicating that Pilots are more likely to listen to advice and enjoy continuous learning. This is appropriate given the regulation of training and numerous simulator training and operations monitoring programs such as LOSA and line checking.



Average Safety Competency Comparisons

When the average for the Pilots and the AUS General Pop were compared on the six safety competencies and the overall safety score, the Pilots had a higher overall average score on all competencies compared to the AUS General Pop. This finding is appropriate given the competencies required for Pilots versus the AUS General Pop, in particular, the ability to remain calm in stressful situations.

Graph 7: Pilots and AUS General Pop Average Safety Competency Comparisons



Conclusion

The comparison results between Pilots and the AUS General Population indicates that the safety competencies from the Hogan Safety Report can be used to determine who is likely to; follow rules and guidelines, remain steady under pressure, control their temper, stay focused on the task at hand, evaluate their options before making risky decisions, listen to advice and enjoy opportunities to learn. This analysis confirms that Pilots have a much greater focus on safety than the Australian General Population. This study is for illustrative purposes only as we would always recommend conducting a criterion study to determine a profile using the Hogan Personality Inventory (which the Hogan Safety Report is derived from). This profile would include the Hogan Development Survey which is designed to identify derailing behaviour that is particularly important in times of stress and complacency. These studies would include statistical analyses which show characteristics that predict success on the job.