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The Stress Coping Skills of Undergraduate Collegiate Aviators

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Introduction

- Flying is a stressful activity. How do aviation students deal with that stress? Are the coping skills they use stable over their collegiate career, or is there is difference between how experienced and inexperienced students deal with stress?
- Research Questions:
  "do inexperienced and experienced aviation students have different levels of perceived stress?"
  "do inexperienced and experienced aviation students use different coping skills in order to deal with their stress level?"

Stress

- "Any environmental, social, or internal demands which require an individual to readjust his/her usual behavior patterns"
- Too much stress can lead to…
  a decrease in performance
  an increase in fatigue
  an increase in the number of errors committed
  an increase in accident rates

Coping Skills

- "The cognitive and behavioral efforts a person makes to manage demands that tax or exceed his/her personal resources"
- Types of coping skills…
  active (problem focused): directly attack the source of the stress and attempt to change the situation for the better
  emotional-focused: articulate feelings about the situation through prayer, venting, or seeking support from friends and family members
  avoidant: mentally or physically disengage from the stressful situation using daydreams, sleep, or drug/alcohol use

Methodology

- Participants:
  49 student or private pilots = inexperienced
  30 multi-engine, commercial pilots = experienced
- Survey Instrument:
  demographic information
  the Perceived Stress Scale (PSS): measured stress level on a 40 point scale
  a coping skills inventory: measured the frequency of use of 14 different coping skills using a Likert scale.

Abstract

An important human factors research interest area is error reduction. Although pilots placed in highly stressful situations have an increased chance of making errors, they use coping skills to lower their stress level and reduce the likelihood of errors. Typically, coping skills are conceptually separated into three types: active coping skills change the situation to make it inherently less stressful, emotion-focused coping skills use discussion or thinking about the situation in a different way to diminish the negative emotional reaction associated with the stressful situation, and avoidant coping skills allow one to mentally and/or physically disengage through the use of daydreams, sleep, drugs, and/or alcohol. In this research project, a sample of 49 inexperienced private pilots and 30 experienced multi-engine commercial pilots were surveyed to determine if significant differences existed between their levels of perceived stress and the frequency with which they used different types of coping skills using a one-time, written survey. Variables measured included demographic information, perceived level of stress, and coping skills usage. The results showed that there was an association between experience level and stress ($F = 5.46$, $p = .022$), emotional coping, ($r = .200$, $p = .078$) and instrumental coping ($r = .201$, $p = .075$).

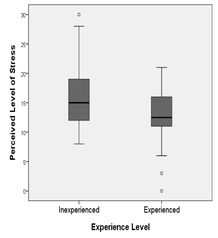
Conclusions and Discussion

- Perceived stress decreases with an increase in flight experience. This could be due to students becoming more comfortable in stressful situations, students learning how to better deal with their stress level over time, or students with high stress levels self-selecting out of the flight program over time.
- There is an association between flight experience and emotional-focused coping skills. The use of instrumental and emotional support increases with an increase in flight time. During the last two years of the flight program at Purdue, there is a heavy emphasis on crew operations during line-oriented flight training; classes in crew resource management skills and human factors could teach students how to better communicate with and relate to those around them.

Implications for Future Research

- Since this study used correlational methods, it cannot draw cause-and-effect conclusions. More research is needed to define how experience level, stress, and coping skills are related.
- A larger project that took a "daily process" approach would examine how each participant used different coping skills over time, instead of measuring group differences. This type of study would collect a much larger amount of data and would be able to draw conclusions on an individual basis, instead of on a group basis.

Results

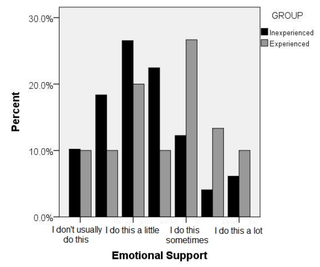


Hypothesis 1

Is there a significant difference is the level of perceived stress experienced by students with difference experience levels? Hypothesis confirmed; an ANOVA test showed that there was a significant difference ($F = 5.46$, $p = .022$).
This box plot shows the level of perceived stress reported by inexperienced students (left) and experienced students (right) on a 40 point-scale. The mean stress level is shown by the thick black line in the middle of each box.

Hypothesis 2

Hypothesis 2 – Is there a correlation between the frequency of use of coping skills and the level of flight experience?
Hypothesis confirmed; a correlation matrix showed there was an association between the level of flight experience and emotional support ($r = .200$, $p = .078$) and instrumental support ($r = .201$, $p = .075$).
Emotional support consists of talking about problems with friends and family members. Instrumental support involves asking for help and advice. The distributions on each histogram show how often participants used emotional (left) and instrumental support (right) coping skills. Inexperienced students were more likely to use the left half of the chart ("I don't usually do this," or "I do this a little") to describe how often they ask for help, while experienced pilots were more likely to use the right half of the chart "I do this sometimes" or "I do this a lot."



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