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**Stress and Exercise in Part 141 Flight Students**

Reece Curcio  
*Florida Institute of Technology*

Thomas Vincent Hayes  
*Florida Institute of Technology*

Reon Porter  
*Florida Institute of Technology*

Brooke Wheeler  
*Florida Institute of Technology*

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ABSTRACT

This study explores how stress levels relate to exercise habits among aviation students in a Part 141 collegiate flight program. There was no correlation between stress and exercise. This outcome was unexpected as the hypothesis was an inverse relationship between perceived stress and exercise.

BACKGROUND

Among the various factors influencing aviation safety and performance, stress management and physical fitness have emerged as critical components (Buttar et al., 2022). Stress is a prevalent aspect of aviation training, stemming from academic pressures and flight performance expectations (Balderrama et al., 2010). Prior research highlighted the importance of addressing stress in aviation training due to its potential negative impact on performance and safety (Cohen et al., 1994). Regular exercise has long been recognized as a beneficial practice for stress reduction and overall well-being (Jones et al., 2018), while too much stress is known to have no further impact (Yoon et al., 2023).

PURPOSE STATEMENT

The purpose of this study is to determine if there is a correlation between perceived stress (Cohen et al., 1983) in aviation students and their exercise habits, measured with the International Physical Activity Questionnaire Short Form (IPAQ-SF; Craig et al. 2017).

METHODS

An Institutional Review Board exemption was approved (24-117) due to the minimal risk. Participants, recruited from core Part 141 courses (Aeronautics 1 through 4, Instructional Techniques, and Aviation Systems Safety) were contacted through professors’ permission to visit the classes. This was a stratified cluster sample of Spring 2024 aviation students, offering a cross-sectional representation of student experience. Participants had to be 18 years or older, with the majority falling within the 18–23-year age range.

The questionnaire was administered electronically via Qualtrics and included the International Physical Activity Questionnaire Short Form (IPAQ-SF) and the Perceived Stress Scale (PSS). Alongside questionnaire completion, grip strength and resting heart rate were measured in person. IPAQ-SF scores were computed according to the provided formula by the International Consensus Group (2004).

RESULTS

During class visits, 342 students were asked to participate. The survey response rate was 79% and resulted in a sample of 270 aviation students. From these 35 were non-flight students.

Table 1: Descriptive Statistics for Perceived Stress and MET Scores

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET Scores</td>
<td>84.4</td>
<td>65.7</td>
<td>83.1</td>
<td>71.3</td>
</tr>
<tr>
<td>PSS Scores</td>
<td>16.4</td>
<td>16</td>
<td>14</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Pearson's r indicated a near zero correlation between perceived stress and physical activity ($r = .05, p = .45$). We found that the correlation was not statistically significant, confirming the what the figure indicates, no clear relationship between PSS scores and MET scores. Thus, the null hypothesis is accepted: there is not a relationship between perceived stress and the amount of exercise completed by Part 141 collegiate flight students.

DISCUSSION

There was a high participation rate, with data collected from 79% of the targeted sample, totaling 270 usable responses. This may be attributed to the physical activity that was paired with the survey. Variations in class attendance across different classes were observed. However, the stratified cluster sample obtained a representative sample of the varying levels of aviation training with the classes ranging from freshmen to senior level courses.

The findings of this study did not support the hypothesized relationship; hence, the null hypothesis was accepted. Analysis revealed no significant correlation between the PSS scores and MET scores ($r = .05, p = .45$). PSS and IPAQ-SF are both self-report methods that rely on participant honesty and their ability to accurately recall exercise activities over the past week.

Mental health is a sensitive issue among pilots; therefore, the potential for dishonesty exists. The mental health of pilots is crucial for ensuring safety in air transportation. Although unexpected, the results give insight into perceived stress and exercise in Part 141 Collegiate Flight Students.

FUTURE RESEARCH

An experiment could be designed to investigate whether more physical exercise can reduce stress among flight students. Student stress levels during finals and mid-terms should be examined to see if exercise is related during those times. Due to safety being critical in aviation, student stress levels should be monitored over time.

REFERENCES


