

## **Excellence achievement-striving in fighter pilots on supersonic aircraft**

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### **Abstract**

The aeronautical profession of fighter pilots on supersonic aircraft is strongly connected to the motivation, performance and excellence achievement-striving. The supersonic fighter pilot represents the highest and most desirable position in the Air Force. Research showed that their selection is made by choosing the potential elite candidates after testing the physical, mental abilities and personality traits specific to this profession. The present research examined the personality trait of conscientiousness factor with achievement-striving facet in fighter pilots on supersonic aircrafts, by using the “IPIP NEO” (International Personality Item Pool NEO) based on Big Five model by comparison of two groups, one of fighter pilots on supersonic aircraft and one of non-pilots. The results indicated that fighter pilots on supersonic aircraft have higher level of excellence achievement-striving in their performance, they tend to be more competitive to become the best and their desire for victory is needed in their highly risky air missions.

**Keywords:** achievement-striving; conscientiousness; fighter pilots; performance; personality traits

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## 1. Introduction

Studies suggest that personality traits of fighter pilots interact with flying performance, contribution in this way to different accidents. The profession of fighter pilots is one of the most tested one. Personality traits of those individuals who perform this profession are very important in the selection process. Qualities such as achievement motivation and ability to make decisions and act quickly, in addition to emotional stability, have been seen as particularly important in military or fighter pilots (Carretta et al. 1996).

The assessment of personality traits plays a decisive role in the selection of fighter pilots. The possible failures represent a big loss for the national Air Forces having in view that the costs of fighter pilots trainings are very high. It is required for those organizations to have a cost-effective system of selection and training (Lambirth T. et al. 2003).

The most important dimension based on Big Five model of personality traits (neuroticism, extraversion, openness to experience, agreeableness and (conscientiousness) that is acknowledged as predictor of performance in this profession is that of conscientiousness (Siem&Murray 1994).

The evaluation and selection of individuals for the profession of supersonic fighter pilots aims to maximize their skills, abilities and training. The supersonic fighter pilot needs a strong intrinsic motivation considering the professional life chosen, the requirements of the military condition and the complexity of the situations to be dealt with. (Pitariu&Sîntion, 2003).

### 1.1. Concepts of excellence achievement striving and motivation

The achievement-striving can be described as a personality trait that implies the desire for success and high aspirations. Moreover, it is an element that underlines the level at which an individual seeks to achieve its objectives and purposes, regardless of the effort they need to make. Individuals have desires for achievement-striving that depend on how seriously they take their work and how active they are for the difficult, stressful and risky work (Bluen et al., 1990).

The conscientiousness factors comprises the facet of achievement-striving that reflects high levels of aspiration, self-focus, devotion to work and energy that are important in personal and professional goals (Costa and McCrae, 1992).

The concept of achievement-striving and success can be connected by social dominance through leadership, higher focused attention and relates very well with extraversion and conscientiousness (Watson and Clark, 1997).

Achievement-striving and conscientiousness are necessary and beneficial in increasing the level of performance because they can be related with certain attitudinal tendencies, such as self-organization, determination, perseverance and responsibility (Furnham et al., 2004).

The professional success can be achieved if individuals set standards that they can meet with the skills compatible with the respective profession, with the related effort and result satisfaction, by eliminating exaggerated perfectionism (Enns et al., 2002).

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Motivation is one of the personality factors that is the basis of the search of the achievement of superior performance in a professional field. Motivation determines the behavior of adaptation or faulty and incomplete adaption to the work environment (Enache, R. et al., 2011).

Motivation is an important factor in the process of self-regulation and a driving force of the individual, psychic and human development. The motivation instigates, drives and triggers the action and directs it to the goal, by allowing the activity to be prolonged if the goal has not been reached (Zlate, M., 2006).

The achievement-striving in the individual can also be connected voluntarily. The will can be defined as a determined desire that involves the individual in action. The volitional effort mobilizes the individual to act according to the size of the obstacles that may appear on the path to success (Zlate, M., 2006).

The level of aspiration and achievement comprises a motivational-volitional element that mobilizes individuals to make the effort to reach the objective, but also cognitive-evaluative element with which the individual sets his targets according to the results that were previously obtained (Pitariu&Sîntion, 2003).

Individuals who have skills and aptitudes in a field need a rising motivational level and not constantly in order to not stagnate but to increase its performance. The established motivations should not exceed much their own capacities and possibilities (Pitariu&Sîntion, 2003).

The success is connected with the performance, and the achievement of the performance engages the individual with the personality factors, the motivational, volitional, cognitive and aptitude elements but also the professional or educational environment. These components guide and direct the individual to seek success and to aim in their performance at the highest level in the respective profession (Watson&Clark, 1997).

Picano et al. (2006) underlines the importance of initiative, motivation, and drive for individuals pursuing a career in high-risk operational positions, such as supersonic fighter pilots.

## **2. Research methodology on achievement-striving in fighter pilots**

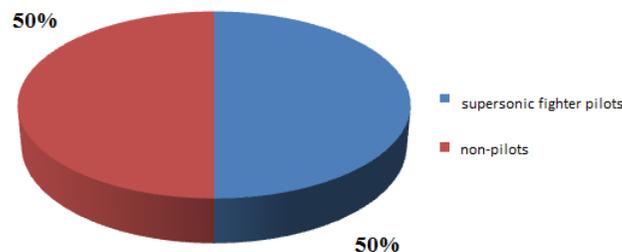
### **2.1. Purpose**

The present paper seeks to provide current normative data by comparing the excellence achievement-striving personality trait based on IPIP NEO questionnaire (based on Big Five model of personality) of supersonic-aircraft fighter pilots to general population.

## 2.2. Participants

This research paper was created with the participations of one sample of supersonic fighter pilots and one sample on non-pilots from Romania country. The information and data were collected from 30 male supersonic fighter pilots, aged between 25 and 45 years, and 30 non-pilots (the sample consisting of 30 male persons active in the labor market with higher studies), aged between 25 and 45 years. The figure 1 presents the two samples used for this comparative research paper.

*Figure 1. Distribution of participants in two samples*



## 2.3. Research hypothesis

The objective of this paper is to verify the hypothesis that the supersonic fighter-pilots manifest a higher achievement-striving by overcoming their human nature in comparison to non-pilots.

## 2.4. Instruments

The scores of achievement-striving variable, that is facet of conscientiousness factor of IPIP NEO questionnaire, were used for the analysis of this hypothesis in order to compare the two samples of supersonic fighter pilots and non-pilots.

### 2.4.1. NEO International Personality Item Pool (IPIP)

The International Personality Item Pool (IPIP) NEO questionnaire is a personality test that is created based on the Big Five model of personality (Goldberg, 1999).

This questionnaire was used based upon a review of the literature and the conclusion that it is useful because it focuses on general domains of personality by presenting the relation between individual personality traits and profession characteristics.

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This questionnaire IPIP NEO has 5 dimensions or factors (N, E, O, A, C) with 6 facets each. Each facet has 10 items that have been translated and adapted in Romanian language. IPIP NEO instrument has the following facets:

1. The Neuroticism factor (N) contains 6 facets: N1: Anxiety, N2: Anger, N3: Depression, N4: Self-consciousness, N5: Immoderation, N6: Vulnerability.
2. The Extraversion factor (E) contains 6 facets: E1: Friendliness, E2: Gregarious spirit, E3: Assertiveness, E4: Activity level, E5: Excitement-seeking, E6: Cheerfulness.
3. The Openness to Experiences factor (O) contains 6 facets: O1: Imagination, O2: Artistic interest, O3: Emotionality, O4: Adventure spirit, O5: Intellect, O6: Liberalism.
4. The Acceptability factor (A) contains 6 facets: A1: Trust, A2: Morality, A3: Altruism, A4: Cooperation, A5: Modesty, A6: Sympathy / Compassion.
5. Conscientiousness factor (C) contains 6 facets: C1: Self-efficacy, C2: Orderliness/Discipline, C3: Dutifulness, **C4: Achievement-striving**, C5: Self-discipline, C6: Cautiousness.

## 1.1. Procedure

The IPIP NEO questionnaires were distributed to the samples of fighter pilots and non-pilots in paper-pencil format, in Romanian language.

## 1.2. Data analysis

Differences between fighter-pilots and non-pilots participants in achievement-striving levels were analyzed by using IBM SPSS Statistics. The distribution of the variable for both samples of participants was verified with Kolmogorov-Smirnov test. The comparison was made by using T-test for independent samples.

## 1.3. Findings

The scores obtained from the IPIP NEO questionnaires from both samples were used in IBM SPSS Statistics.

Table 1 contains the central tendency obtained for the two samples, fighter pilots  $N = 30$ , mean 40.5, median 40.5 and standard deviation 3.23, and non-pilots  $N = 30$ , mean 38.8, median 38.5 and standard deviation 3.07.

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*Table 1: Central tendency (average values) of the numerical data set related to achievement-striving variable*

		Statistics	
		Achievement-striving in fighter pilots	Achievement-striving in non-pilots
N	Valid	30	30
	Missing	0	0
Mean		40.5667	38.8000
Median		40.5000	38.5000
Mode		41.00	38.00 <sup>a</sup>
Std. Deviation		3.23433	3.07829

The distribution of the achievement-striving variable in the two samples was verified by confirming the normality of the distribution by the Kolmogorov-Smirnov test, according to Table 2 in this paper.

*Table 2: Distribution of the achievement-striving variable in the two samples*

Tests of Normality			
	Kolmogorov-Smirnov <sup>a</sup>		
	Statistic	df	Sig.
Achievement-striving-pilots	.164	30	.039
Achievement-striving-non-pilots	.294	30	.000

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Tables 3 presents the comparison for which it was used the T-test with independent samples, in which Sig. (2-tailed) value is 0.035 that is less than 0.05 and which explains that the variability in the two conditions means is significantly and statistically different, by resulting in a significant difference between the two samples in achievement-striving variable.

Table 3: Results in comparison with T-test independent samples for achievement-striving variable

		Independent Samples Test						
		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper	
Achievement-striving	Equal variances assumed	2.160	58	.035	1.76667	.81802	.12922	3.40411
	Equal variances not assumed	2.160	57.819	.035	1.76667	.81802	.12911	3.40422

## 2.8 Discussion

The hypothesis is confirmed, resulting that the fighter pilots have a higher desire for excellence achievement-striving in comparison to the general population.

The fighter pilots on supersonic aircraft have high motivational levels and make every psychically, intellectually and physically effort to perform in their professional duties. This personality trait is not developed by the military environment in which these pilots are professionally trained, but exists as a stable personality attribute to all those who choose this profession of supersonic aircraft flying.

Motivation is what guides the pursuit of success with all the forces and powers of these fighter pilots. The fighter pilots have an attitude of overflowing perseverance that implies the desire to fly, the intensity and direction of this motivation with flight safety.

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Fighter pilots on supersonic aircraft adapt to the aeronautical environment based on flight motivation, ability to fly but also emotional stability, elements that can be identified even before they are declared fit for this profession.

Fighter pilots are looking for excellence achievement-striving with performance orientation. They tend to be competitive in order to become the best, and the desire for victory is necessary to obtain as many points as possible in the highly risky air missions.

The job satisfaction motivates a supersonic fighter pilot to make more effort and encourages them to perform better or get performance excellence. Appreciation from colleagues and superiors is another element that accentuates the desire for success.

Individuals who perform this profession simply love to fly on supersonic aircraft and recognize the real danger they face and the demands during flight training, having the ability to turn aggressive forces into extremely well calculated risks management and assumption.

There are some aspects that should be noted but are classified by Romanian Air Force department, which are related to the motivation for success and the achievement-striving, namely the number of hours flown during a pilot's career, performance on flight exercises, briefing and debriefing standards, artillery tactics, flight discipline and flight safety. These elements would present a considerable evolution in the supersonic fighter pilot profession and the reach of maximum performance based on the excellence achievement-striving trait.

### 3. Conclusions

This paper showed that fighter pilots on supersonic aircraft have higher level of excellence achievement-striving in their performance in comparison to general population. The level of achievement-striving facet of conscientiousness dimension of IPIP NEO can be used in fighter pilots testing or selection.

The results of the current study show that Romanian supersonic fighter pilots have superior achievement-striving and conscientiousness as compared to general population and may prove to be essential to psychologists and ergonomics specialists working in the evaluation of Romanian fighter pilots.

The personality of supersonic pilots is complex and specific, with an impact on their professional success. The supersonic fighter pilots are very intrinsically motivated and very determined to constantly study and perform as well as possible. They can undertake and complete tasks regardless of the level of difficulty.

Another future comparison may be focused on the differences between male and female supersonic fighter pilots. There are currently no such comparative gender studies in the fighter pilot profession on supersonic aircraft in Romania, due to the small number of women in this profession, but it would be very interesting to identify personality differences in the future.

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