

## Stressors and stress coping strategies among Civil pilots: A pilot study

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### ABSTRACT

The aim of the present study was to identify the psychosocial stress and coping methods in a sample of 55 civil pilots. The subjects are administered stress questionnaires and the results clearly indicate presence of professional stress (78%) amongst the civil pilots. Majority of them (77%) use emotion focused as a stress coping method. However, some of the pilots use problem solving (18%) and social support (5%) as an effective stress coping methods. Stress management programmes are suggested for the stress prone pilots for enhancing their operational efficiency.

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**Key words:** Psychological stress, coping methods, civil airline pilots.

In the recent years effects of stress on adaptation and human performance have received considerable attention in the medical literature but relatively little is known about psychological stress in the commercial airline pilots, especially in the Indian context. Stress is an everyday reality in the aviation scenario. Notwithstanding mystique about the aviators' intrepid coolness, rationality and fortitude; yet pilots are human in the context of mood, emotion, and predisposition, in other words the "affect". Pilots marry, may become involved in family disputes, may disturb sleep management, have sleep management disputes, frustrations, had or other worries of daily lives. Some of these may represent minor hassles to non pilots but can adversity affect a pilot's career.

A pilot lives a life of deadlines. He/she is under constant pressure to maintain a public relations image. He/she is exhorted endlessly to be disciplined, responsible, vigilant, and economically conscious. He/she works under threat of immediate media spotlight in an incident. Pilots may have to cope with, among other things in the airline industry, unsafe weather, bad management and unpredictable schedules etc. In recognizing human fallibilities and vulnerabilities of aircrew we can better appreciate the remarkable performance achieved daily and

routinely by hundreds of aircrew and there are many instances where exceptional presence of mind has been ensured safe flight.

The process by which stress acts as a precursor to a broad range of physical and psychological disturbances has been of interest to aviation researchers for a long time. Aviation psychologists have identified three types of stresses such as physical stress, cognitive stress and affective Stress.

Cognitive stress is defined objectively as the nature of the task presented to the operator e.g. excessive cockpit workload or inadequate information on which some critical decisions have to be arrived such as landing in bad visibility or malfunctioning of ground aids.

Affective stress on the other hand, is subjective in nature. Its effects can be meaningfully interpreted by reference to the life history and personality of the person under stress and its intensity measurable by the strain produced. Unlike

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cognitive stress, which gradually produces increasing impairment of efficiency, affective stress affects within seconds of its onset, can bring about a complete breakdown in the rational behaviour as in the form of paralysis known as freezing at the controls [1]. It is believed to be the most dangerous especially it as being cumulative [2].

The effects of stress gain paramount importance because the pilot may exhibit impairment to a varying extent, independent of specialized aviation knowledge. While the “stick and rudder” control is a learned skill, there are other underlying psychomotor processes which are likely to degrade the skills under stress. Stress can affect the memory functions, both memory capacity and memory strategy [3]. In addition, impairment in working memory has the potential to affect visual-spatial process, including orientation in three dimensional space, a function critical to situational awareness [4].

Other skills likely to be impaired are attention and vigilance. There is some evidence that stress has the effects of narrowing the intentional beam. A phenomenon often called “perceptual tunneling” this may involve an actual narrowing of the field of vision as measured by visual angle, and has been associated with emotional stress [5]. Another cognitive function that is of great importance in aviation is that of judgment and decision making. several studies have shown that many accidents, involving pilot error, can be traced at some level to suboptimal decision making [6-7], a problem that can be profoundly exacerbated by stress.

Most research indicates that depending on the particular job and organization, sources of stress together with certain personality traits may be predictive of a variety of stress manifestations, such as coronary heart disease, mental ill health, job dissatisfaction, marital disharmony or substance

abuse. Often the existence of stress related symptoms are denied by the individual and ignored by the company, until they become apparent through behavior changes such as aggressiveness, alcohol dependence in, or through sickness such as hypertension, heart diseases, or peptic ulcer or decreased performance.

There are five major sources of occupational stress.). First factors intrinsic to the job i.e. fundamental aspects of the job that affect the job and the individual’s working life. These may include poor physical working conditions and may include seemingly simple facilities such as not being provided pre and post flight air conditioned transport in the sweltering heat second shift work is a common occupational stress so also work/rest patterns of aircrew while away from base in long range flying may be irregular, which may be influenced by disturbed circadian rhythms. These can affect an individual’s ability to cope with external stressors and with mental and psychomotor performance. Other factors are work overload/under load; physical danger; and interaction between an individual’s psychosocial characteristics and objective environmental work conditions. Such misfit may occur due to stress resulting in problems such as depression, anxiety, job dissatisfaction a physiological maladies.

A person’s role at work has been isolated as a main source of occupational stress, involving role ambiguity (Lack of clarity about one’s job) and role conflict (conflicting role demands) as well as responsibility for people and conflicts stemming from organizational boundaries. The correlation between these factors and job satisfaction tend to be high, However, personality differences are important determinants of how an individual reacts to role conflict. The typically personality of a pilot may not be an optimum one for handling emotional problems since he/she is a person who typically denies his/

her emotional life and may possess inadequate strategies for coping with emotional situations [8].

Career development is a fundamental stressor at work. This refers to the impact of promotion, status incongruence, lack of job security, a thwarted ambition and interpersonal relationship, which includes social support from one's colleagues, boss and subordinates. These have been related to job stress, even in those at the top. Organizational structure and climate such as politics, lack of effective consultation, lack of participation in the decision making processes, and restrictions on behaviour is another source of stress. On the part of the organization the above sources of stress manifests among employees in the form of high absenteeism, high labour turnover, industrial relations difficulties, and poor quality control [9].

Although for studies on aircrew stress done in India brought out the importance of the above factors. A case report cited a civil aircraft accident resulting from gross crew in coordination as a result of interpersonal factors [10]. Another study on Air India pilots found high state and trait anxiety levels and frustration, due to feeling of stagnation at the job, as well as internal an departmental politics.

Emotional stress associated with family separation for nearly one third of the working life can be particularly disturbing when children are growing up and spouse needs support. The tensions that arise from basic economic and security needs that the individuals beings with them into the family affect the spouse and home environment.

Research has been conducted in specific contexts, most of it has been undertaken to explain the relationship between stress and accidents [12].

The research on stress and subdivides among pilots has been studied as per the following approach.

(a) *Pilot personality and stress*: many studies have found a link between pilot personality and accidents [13-15]. Personality inadequacies in coping with stress seem to result in some form of flying impairment, especially when coupled with affective stress [12, 16].

(b) *Life events and stress*. Most of the research in this field has concentrated on the link with accidents. One study [2] analyzed commercial aircraft accidents and attributed 45% to human error on the flight deck. Another study [17] reported the results from a survey of Canadian civilian pilots and found that some two thirds of the life event items "served as accident markers in at least one of the pilot groups", although no single item did so across all groups.

(c) *Psychical stress*: A multivariate approach was developed to study stress in civil pilots [18]. Both occupational and domestic stressors were identified as being important. It was also found that it is a combination of source of stresses that interact with the characteristics of the person combined with a failure of coping strategies that leads to stress outcomes.

Few professions carry so much of responsibility as a pilot of aero medical airlines. Stressful experiences are of importance to pilots, their employers and those who regulate air travel as well as to airline passengers. Some are acknowledged as potentially very stressful and the civil aviation pilot's job has been classified as a 'very high risk' one [19].

This study was taken up (1) since there is a apparent dearth of studies in the area relating to psychological, especially psychosocial aspects of stress in the Indian population with an aim [2] to estimate the prevalence of stressors and their effects in indian civil pilots.

**Material and Methods**

70 healthy and well motivated pilots drawn from different airlines, constituted the sample for this study. Their age ranges from 23-53 years with, 450-12,000 hours at flying to their credit. The subjects were administered this stress questionnaires professional Life Stress Scale and NIMHANS Stress Coping Scale.

Professional Life Stress Scale, test is administered to pilots to measure the magnitude of the professional stress. This test has been developed by Armed Forces Medical College, Pune. It consists of 24 statements. It usually takes 15 minutes to complete the test. Standard scoring procedure is adopted.

NIMHANS Stress Coping Scale: This test is administered to find out various methods adopted by the pilots to overcome the day to day life stresses. This test has been developed by National Institute of Mental Health and Neuro Sciences, Bangalore this test assesses different stress coping strategies: problem solving, emotion focuses (Distraction-Positive and Negative), acceptance/redefinition, religion/ faith, Denial/blame) and social support. This test consists of 70 statements. It usually takes 30 minutes to complete the test. Standard scoring procedure is adopted.

Responses from 15 pilots were incomplete, hence, they were rejected from the present study. There were responses from 55 pilots available for the analysis.

**Table 1: Scores on Professional Life Stress Scale (n=55)**

Degree of Stress	Pilots Number	%
No stress	07	13
Mild stress	23	42
Moderate stress	20	36
Severe stress	05	09

**Results and Discussion**

The findings of the present study are shown on tables 1-2.

**Table 2: Scores of NIMHANS Stress Coping Scale (n=55)**

Coping method	Pilots Number	%
Problem Solving	10	18
Emotion Focused		
-(i) Distraction-Positive	07	13
(ii) Distraction Negative	02	04
(iii) Acceptance / Redefinition	21	38
(iv) Religion / Faith	11	20
(v) Denial / Blame	01	02
Social Support	03	05

It is evident from table 1 that out of 55 pilots, only 13% were free from professional stress. Majority of them (78%) were found to be suffering from mild to moderate level of stress. This clearly indicated that stress is on part of piloting inherent of stress. 9% of them are affected by severe stress, which relieves stress management.

As seen from the above table 2 that most of the pilots (77%) used emotion focused coping strategy in overcoming their stress. 5% of them get relief through social support. The remaining pilots (18%) use problem solving methods to deal effectively with their day-to-day life stresses.

**Conclusion**

Most of the pilots were found to be suffering from mild to moderate levels of professional stress. Stress coping strategy for most at there was emotion focused. Some of the pilot use problem solving and social support as an effective stress coping methods.

In view of the small simple size further study on large sample is suggested. In view of piloting

being a complex psychomotor task, which is inherent of stress, stress management programmes may be organized for the pilots to enhance their operational efficiency.

**Conflict of interest: None**

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