

# A kind of Psychological Immunity training for Pilots

Zhiqiang Zhang, Ruochong Jiang, Yugao Zhang, Danyang Sui

Aviation University of Air Force. Changchun City, Jilin Province, China130022

**Abstract.** In the long history of psychology, more attention has been paid to mental illness and treatment, but in fact, the more important thing should be to adjust the positive level of emotion, especially for pilots. In this paper, the positive psychology method is used in discussing some aspects that pilots need to face in the stress environment and give methods: self-confidence, optimism, and fearlessness are generated in the process of action, therefore, experience is the way to gain self-confidence; the method of cognitive therapy can changes pilots 'incorrect cognitive and dangerous attitudes; Stress management ensures that pilots have the ability to resist stress. This method makes the pilot's mental health level above the horizontal level, so that he can achieve a certain degree of immunity to various psychological problems and can better perform flight tasks.

**Keywords:** Positive Psychology; Strong Psychology; Psychological Immunity

## 1. Introduction

The study of pilot psychology in China started in the 1950s and developed rapidly in the 1980s, with the emphasis on the study and establishment of psychological selection methods for recruiting pilots, after more than 40 years of efforts, the Air Force of China has developed and popularized a variety of psychological measurement methods for recruiting pilots, and has now formed a relatively standardized recruitment psychological selection method system with a certain scale. 757 pilots from different military regions and different types of aircraft were evaluated. The results showed that the mental health status of air force pilots was obviously better than that of ordinary people, and the total score of SCL-90 and 6-9 factors of excellent pilots (excellent flight skills) were significantly lower than those of ordinary pilots, ground crew and army lieutenants. At the same time, many investigations and studies have also confirmed that the total score and various factors of SCL-90 of pilots are lower than the national local norm and the general norm of Chinese pilots, and the mental health status is better [9]. Even so, the investigation of flight accidents still shows that human factors account for 58% -97% of the total accident rate in flight accidents, which is closely related to pilots' psychological factors, which are still the main causes of flight accidents and flight safety problems.

Because of the particularity of pilots' profession, they not only have to face the special working environment and the high risk of war, but also have to face many problems such as job, family and social stress. They also have to bear the great psychological and social pressure. The psychological shaping measures of professional norms and scientific systems are also imminent. In this paper, the positive psychology method is used to study the aspects that pilots often encounter, and the methods are given to enhance the psychological immunity of pilots to resist the negative emotions caused by stress.

To enhance psychological immunity is to cultivate self-confidence, optimism and fearless quality; to correct irrational cognition; to implement management of stressful events.

## 2. Ways to gain confidence, optimism, and fearlessness

The purpose of developing strong psychological immunity in pilots is to reduce psychological problems and improve resilience after stress shocks. Positive factors such as optimism, confidence, and fearlessness amplify and change the way people see and experience the world, allowing people to break through frameworks, unleash potential, and be better able to cope with inevitable difficulties. These positive factors can strengthen the immune system. In addition to focusing on

and remedying the worst things in life, psychology is more important to build positive psychological qualities in order to feel the best things in life.

Self-confidence, optimism and fearlessness are the psychological qualities that pilots desperately need. So how can pilots become more confident and optimistic? It takes action, not words, to gain confidence and optimism. You have to work hard to solve the problems you are facing. To become more confident, you need to deal with the challenges you are facing. You need to put yourself above the risk (the risk of failure). Only by working hard and facing them can you succeed. At least more than before, this also helps to improve self-efficacy and self-confidence. Self-confidence in turn inspires you to work harder and start believing in yourself more. It is such a virtuous circle that pilots can gain confidence in the process of solving problems through hard action in the process of constantly pursuing excellence.

When they are ready to face the problem positively, the power of fear will gradually weaken and self-confidence will rise bit by bit. With self-confidence, they will be calm and calm in critical moments. People who achieve self-confidence will not lose sleep, are not worry, or be impatient, and they will prepare for the worst in life at anytime and anywhere, but pursue the best.

### **3. Correct the irrational cognition and dangerous attitude of pilots**

Irrational cognition is a major killer affecting mental health, irrational cognition often leads to fear, anger, guilt and depression and other negative emotions, long-term entanglement in negative emotions often directly lead to mental disease. In the treatment of depression, correcting irrational cognition is recognized as the most effective method. For pilots, in addition to the common irrational cognition, there are also some attitudes towards flight risks that need to be corrected.

#### **3.1 Discrimination of Irrational Cognition**

The discrimination of irrational cognition is usually to see whether it is in line with the actual situation. For example, if a guy gets rejected on a date and thinks, "He rejected me, so everyone will reject me," instead of thinking of failure as an opportunity, a springboard, but as the end of the world, his idea is irrational. But people are usually "in the Lushan Mountains." It is necessary to list the typical irrational cognition and provide some enlightenment. There are ten types of irrational cognition:

Table 1. Common Irrational Cognition (False Cognition, Need to be Corrected)

Irrational Cognition	Example
1 Amplification and Minimization Induction	For example, 618 of the 620 students in the classroom are looking at the textbook, one is looking at the ceiling, and the other is sleeping. If you just focus on the person who is sleeping, the teacher says to himself, "My class must be boring and sleepy", which is minimization cognition. If, on the other hand, 618 out of 620 students fall asleep, then the perception is consistent with reality.
2 The idea of being "either here or there"	If something is not perfect, consider it a complete failure. For example, a young woman on a diet eats a scoop of ice cream and says to herself, "I broke the whole diet plan." This idea can cause her to swallow the whole large ice cream box.
3 Mental filtration	Many people have positive opinions about the speech you gave to your comrades, but one person's opinion is a little critical. You will mope over the criticism for days on end and ignore all the positive opinions.
4 Belittle the positive factors	If you are doing a good job, you say it is not good enough, or anyone can do it! Not believing in the positive can take the fun out of life and make you feel incompetent or unreached.
5 Rush to a conclusion	Explain things in a negative way, rather than in a conclusion that can be supported by facts. Guessing other people's minds and jumping to conclusions without any investigation those others are reacting negatively to you.
6 Exaggerating	Overstating the importance of your own problems or shortcomings or diminishing the importance of your own strengths. Which is also known as a "two-way telescope" (from the eyepiece, the target will be enlarged, from the objective lens, the target will be reduced).
7 Emotional reasoning	You think your negative emotions must reflect the true face of the situation: "I feel guilty, I am a total loser" or "I am too low, which means I am a second-class citizen"
8 "should" mode	A very talented pianist told herself, after playing a difficult piece of music, "I shouldn't have made so many mistakes," which made her feel bored. As a result, she stopped practicing for several days.
9 Labeling	"I made a mistake" then label yourself "I am a loser". You may also label yourself a "fool," a "jinx," or a "moron." The label doesn't make sense because you are not.
10 Self-blame or blame others	If a mother is notified that her child is having trouble learning, she should look for the cause of the problem, which might help her child, and she blames herself instead: "It shows what a poor mother I am."

These are the irrational perceptions that negative people often make. Negative people are either extraordinary or mediocre, with no middle ground. Irrational cognition can cause psychological problems, serious mental illness, so the above irrational cognition should learn to overcome the thinking habits in the psychological training of pilots. Instead, be a positive person, focus on successful things, focus on the bright side of life, and find a trace of white light in the dark clouds. The world won't be all right, but it can turn bad things around, things will get better, things will get better, it may take some time to see the light, it may take some time to forget the humiliation, pain and disappointment, but all the bad things will pass.

### 3.2 Correction of dangerous attitudes

Risk attitude is the main factor affecting pilots' judgment. To improve the quality of pilots' decision-making, it is necessary to prevent and overcome them. The method of reverse thinking can be used to correct the dangerous attitude, that is, when the pilot produces one of the five dangerous attitudes or several dangerous attitudes at the same time, and the pilot has realized that he has produced these dangerous attitudes, he should change his cognitive angle through his own conscious efforts, which is suitable for before, during and after flying. If he often rectifies consciously in his daily life, he can also achieve the purpose of preventing dangerous attitude.

Table 2 Dangerous Attitudes and Corrective Measures

Dangerous Attitude	Corrective Measures
An anti-authority attitude: Don't mind/The rules are for other people	The other person's advice may be reasonable/The rules are usually correct
Impulsive attitude: There is no time. I must do it now.	Don't be too impulsive. Look before you leap.
Lucky attitude: It won't happen to me.	It could happen to me.
Show off attitude: I'll show you. I can do It.	It's stupid to take unnecessary risks.
Submissive Attitude: All efforts are useless	I am not helpless, I can change the status quo.

#### 4. Pilots' Stress Management

Stress, the biggest health concern, is also a major cause of depression. The study found that psychological stress was the cause in more than 85 percent of noncommunicable patients. Stress can cause high cortisol levels, prolonged sympathetic hyperactivity, and damage to previously associated organs (heart, lungs, liver, kidneys, intestines and stomach) and the brain. It will bring people physical and mental diseases such as primary hypertension, diabetes, bronchial asthma, peptic ulcer, ulcerative colitis, hyperthyroidism, rheumatoid arthritis, and nervous system dysfunction such as depression.

So how do you know how stressful an event is? Professor haluodemeiluoweizi of the United States has found that the health damage caused by divorce is the same as smoking 20 cigarettes a day, that is to say, different stress factors can be quantified and transformed. Along these lines, two other professors, Thomas F. Helms and Richard ray, have developed a table of different stresses that can be used to quantify each other's stress levels.

Table 3 Pressure Score Comparison Table

Event + Stress Score		Job Responsibilities Change	30
Minor offences	11	Loss of security	31
Spring Festival	12	net income over a year mortgage	35
holidays	13	Increased number of arguments with spouses	36
Changes in eating habits	15	changing jobs	37
Change in number of family reunions	16	deaths of friends	38
Changes in sleep habits	16	Changes in economic status	39
Changes in social activities	18	Business adjustments	39
Changes in entertainment	20	new family members	39
School Change	20	Sexual Difficulties	40
Change of place of residence	20	family illness	44
Changes in working hours and conditions	23	Retirement	45
Conflict with the boss	24	unemployment	47
Personal Habits Change	25	get married	50
Alteration of living conditions	26	Injury or illness	53
Started or graduated	26	deaths of family members	53
Spouses' cessation of work	28	Sentence	63
Notable personal achievements	29	separations	65
Conflict with relatives	29	Divorce	73
Children leave home	29	spouse dies	100

A person with a score of 150 to 190 in one year has a low level of stress; a score of 200 to 299 has a medium level of stress that needs to be adjusted; a score over 300 has too much stress and needs to be changed. If you have a stress score below 150 in the previous year, you have a 30 percent chance of having a dramatic change in your body the next year. If you have a stress score between 150 and 300, you have a 50 percent chance of having a dramatic change in your body the next year. If your stress score exceeds 300, there is an 80% chance that your body will change dramatically.

In addition to being able to artificially control the buildup of stressful events, you also need to learn to adapt to stress. Without a personality that adapts to stress, physical and mental health will be threatened. Stress, in itself, does not cause disease. What really causes disease is an overreaction to stress. To better adapt to stress, you need daily training to store mental energy and keep your nervous system healthy. Here are three main methods of psychological training:

1. Record your emotions: Record your emotions, including pain and happiness emotions. For pain emotions, by recording and analyzing the root causes of pain emotions and what actions to take to eliminate it, will reduce the pressure of anxiety. This is because both positive emotions and painful emotions come from the same transport channel, if we inhibit something or stop something painful, we often inhibit some positive emotions indirectly and unintentionally, as long as we keep our hearts open and let these emotions show freely, then they actually open a closed channel, a channel for all kinds of emotions, including pain and positive emotions.

2. Exercise: People who exercise over a long period of time are more likely to overcome attention deficit disorder. Exercise is neuroplastic to our brain. The chemicals released by our brain during exercise help form new neural pathways for optimism and happiness, and the chemicals needed to form new neural pathways are released when we exercise. When we exercise, we release just enough chemicals to reach our best state. The best exercise of choice is aerobic exercise, Wednesday, four half-hour aerobic exercise; this is the minimum requirement, the highest five or six times, too much. However, if you can do weights training to supplement aerobic exercise that is also very good, two or three weights training a week is very good, but it cannot replace aerobic exercise. Studies have found that it improves mental health as aerobic exercise, but we can say that aerobic exercise can produce results comparable to some strong psychotropic drugs.

3 Meditation: Most meditation is based on deep breathing, like infant breathing, with the belly breathing in and out, inhaling all the way into the belly and exhaling slowly and gently. Happy people are usually more active in the left prefrontal cortex; unhappy people are more active in the right prefrontal cortex. Researchers in 2001 studied many mediators' and found that they were highly happy, susceptible to positive emotions, and resistant to painful emotions. Another measure of health and calmness is the "startle response," which is when you hear a loud noise and you jump. This startle response is important because the more easily you startle, the higher your anxiety level, or at least your anxiety level. People who meditate a lot, tell them to stay calm and calm, and then scare them. They don't react at all. Calmness is contagious, just like happiness is contagious. Calm people can stabilize their minds.

Usually, by controlling pressure events and training pilots with three methods, we can reduce their anxiety level, cultivate their excellent quality of not being in danger, deal with emergencies with clear mind and wisdom and courage at critical moments, so as to achieve accurate decision-making and avoid unnecessary casualties and failures.

## 5. Results and Conclusions

Strong pilots with strong convictions, strong personalities, and a reverence for life make for a fearless, resourceful, courageous, and loyal flying team. The Symptom Checklist 90 (SCL-90) is a scale that is relatively consistent with these core qualities of pilots. The results of 89 pilots before and after cognitive training in a hospital were measured by the scale, and 100% of the valid questionnaires were collected in both tests.

Table 1. Pre- and post-SCL-90 comparison

SCL-90	pre-training	post-training	t
Somatization	5.26±3.94	3.96±3.16	9.44**
Compulsive	9.92±4.86	7.58±3.92	15.05**
Interpersonal	7.82±3.42	4.28±2.22	13.02**
Depression	9.74±6.32	6.10±4.58	13.02**
Anxiety	6.30±4.60	3.74±3.04	10.41**
Hostile	4.48±3.80	3.48±2.38	6.86**
Horror	3.08±2.47	2.50±1.96	5.06**
Paranoid	3.96±2.46	3.12±1.93	6.86*
Psychotic	5.76±3.83	4.50±3.00	7.95**
Others	4.74±3.21	3.96±2.64	6.76**
Total score	61.06±38.91	46.22±27.83	6.76**

\*\*p=0.01, \*p=0.05

The total score and the scores of all factors except hostility, paranoid ideation, psychosis and other factors were significantly lower than those before the lecture. The results showed that the total score of the scale decreased ( $14.22 \pm 7.28$ ). The method of this paper was effective, especially in enhancing self-confidence, improving behavior and improving interpersonal relationship. It can make up for the lack of psychological counseling and therapists, do not hurt self-esteem, and play a very good role in preventing pilots' mental illness.

Psychological factors are the main causes of flight accidents and flight safety problems, so enhancing the psychological immunity of pilots is a major mission project, which requires unremitting efforts of organizations and individuals. Only when the inner immunity of pilots is strong, can they face difficulties and disasters calmly and calmly, so as to reduce the occurrence of flight safety accidents and better complete flight training and combat tasks.

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