

# *The Difference of Cognitive Ability under Different Levels of Emotion Regulation under Stress*

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**Abstract:** What will people react and respond when they are facing a stressful environment and a uncomfortable place. Will they react differently when they are facing interference than others who work at a normal environment? Research purpose refers to the starting point and direct intention of scientific research. The purpose of the study not only explains the reason of the study, but also points out the direction and focus of the study. The correct research purpose can help researchers better grasp the research direction, avoid blind exploration, and improve the efficiency and accuracy of research. Research significance refers to the contribution of research results to practice, theory, method and so on. Research significance can be divided into practical significance and theoretical significance. Practical significance refers to the guiding effect of research results on practice, which can provide reference and guidance for practice. Theoretical significance refers to the contribution of research results to the theory, which can provide support for the development and improvement of the theory. So, this research is important for author.

**Keywords:** react, respond, stress, environment, interference

## 1. Introduction

Stress refers to the state of mental and physical tension that an individual feels in the face of various challenges, demands, or stressors. Stress can come from various aspects, such as work, study, interpersonal relationships, financial pressure, etc. When we are stressed, our bodies release stress hormones such as adrenaline and cortisol, which can lead to increased heart rate, deeper breathing, and other physical reactions.

Stress itself is not necessarily bad, a moderate amount of stress can stimulate our motivation and effort, help us meet challenges and improve performance. However, when stress exceeds our ability to cope, it can have a negative impact on our physical and mental health. Prolonged exposure to high levels of stress can lead to anxiety, depression, insomnia, digestive problems, reduced immune system function and other health problems.

The purpose of the investigation is to study what is the reaction of a person that was undergoing pressure. How can pressure affect their behavior. Comparing with the people who was not undergoing pressure. People often make mistake when they are under pressure. However, some individuals can do better under pressure.

The essence of stress is manifested as a physical or psychological reaction. When we face some kind of challenge or pressure, the body will appear muscle tension, rapid heartbeat, rapid breathing

and other physiological reactions, but also anxiety, excitement and other emotional reactions. This excessive state of mental or muscle tension can lead to physical or psychological discomfort, such as headaches, muscle pain, insomnia, depression and other symptoms.[1]

It is important to note that stress is a normal physiological and psychological response that helps us cope with stress and challenges. But excessive stress can have negative effects on physical and mental health, such as heart disease and depression. Therefore, proper relaxation and stress relief is very important. You can use exercise, meditation, breathing exercises and other ways to help yourself relieve tension.

Also, there are different angles to analyze tension.

**Sociological perspective.** From the perspective of sociology, tension is a kind of social psychological phenomenon. In some cases, people may feel nervous because of uncertainty, pressure, or competition. To some extent, this tension reflects the pressure and competition of the social environment, which can affect the behavior and decision-making of individuals, and thus affect the operation of the whole society.[2] From an pedagogical point of view, stress is a state of learning. In the learning process, a moderate sense of tension can stimulate people's learning interest and motivation, and promote the mastery of knowledge and skills. However, excessive stress can hinder learning and performance, which can affect student achievement and development.

To sum up, stress is a complex psychological experience, which has different meanings and influences from multiple perspectives such as physiology, psychology, society and education. Moderate tension can stimulate people's motivation and enthusiasm, but excessive tension will hinder personal performance and development. Therefore, we need to learn to control and regulate our tension in order to better cope with different situations and challenges.

## 2. METHOD

Researcher found volunteers in my highschool so there is no bias. This experiment divided 12 people into 2 groups. Subjects are senior students between 15-18. Each group contains 6 person. 3 male and 3 female. Group 0 is the stress group. They have interference during the experiment. Group 1 is the non-stress group. They do not have interference during the experiment.

The PASAT experiment (Paced Auditory Serial Addition Test) (PASAT) is a neuropsychological test used to assess capacity and rate of information processing and sustained and divided attention.[3] Originally the test was known as the Paced Auditory Serial Addition Task (PASAT). The subjects are given in the version used as part of the Multiple Sclerosis Functional Composite a number every 3 seconds and are asked to add the number they just heard with the number they heard before. This is a challenging task that involves working memory, attention and arithmetic capabilities. The PASAT was originally developed for use in evaluating patients with head injury. The advantage in this population was supposed to be minimal practice effects. This test has been widely used in other conditions besides traumatic brain injury.

Multiple sclerosis :

It has become widely used in the testing of patients with multiple sclerosis as patients with this disease frequently have an impaired performance on this test. The PASAT was included in the Multiple Sclerosis Functional Composite 3) as a cognitive measure. However, the use of the PASAT in clinical trials in MS it has shown to be problematic as there are significant practice effects over repeated measures; typically the effect of treatment is reflected by a larger improvement on the test compared to the control group.[4]

This experiment divided 12 people into 2 groups. Subjects are senior students between 15-18. Each group contains 6 person. 3 male and 3 female.[5] Group 0 is the stress group. They have interference during the experiment. Group 1 is the non-stress group. They do not have interference during the experiment. The experiment is to test these 2 groups of people. The disturbance in the test comes

from the Noise in the environment. During the test, investigator records their result. Including Sex, Group, Age, test accuracy rate, reporting rate, Correct answers, Wrong answers, Standard answers and self assessment pressure. Group 0 will undergo pressure influence. [6]

Table 1: Group statistic concludes all subject's data

Group statistics						
	Groups	Numbers of subjects	average value	Standard deviation	Mean standard error	
Self-measure your pressure level	1	6	5.50	1.761	0.719	
Self-measure your pressure level	0	6	6.50	3.017	1.232	
Test accuracy rate	1	6	52.5000%	37.78227%	15.42455%	
Test accuracy rate	0	6	35.0000%	35.35534%	14.43376%	
Report rate	1	6	79.1667%	22.67524%	9.25713%	
Report rate	0	6	66.6667%	30.60501%	12.49444%	

Table 2: Signal subject sample

		F	Significant	T	Degree of freedom	Sig	Mean deviation	Standard error deviation	Lower limit	Upper limit
Self rated stress level	Assumed equal variance	3.182	0.105	-.701	10	0.499	-1.000	1.426	-4.177	2.117
	Non assumed equal variance			-.701	8.052	0.503	-1.000	1.426	-4.285	2.285
Test accuracy rate	Assumed equal variance	0.065	0.803	0.828	10	0.427	17.50000%	21.12463%	-29.56861	64.56861%
	Non assumed equal variance			0.828	9.956	0.427	17.50000%	21.12463%	-29.59666%	64.59666%
Report rate	Assumed equal variance	0.433	0.521	0.804	10	0.440	12.50000%	15.55010%	-22.14778%	47.14778%
	Non assumed equal variance			0.804	9.218	0.442	12.50000%	15.55010%	-22.55022%	47.55022%

### 3. RESULT

It turns out that the result is not significant at all. It is because there are only 6 subjects in one group which is less than 30 subjects. The result cannot be accurate. Qualified participants can try the experiment on a scale of 30 people. The data that show at the graph are higher than normal value. There are not very significant difference between two experimental group. However, it is a good experience for entry level investigators like me.

### 4. Discussion

There are advantages and disadvantages of the experiment. The positive result normally the experiment would be done in a lab so the subjects would be very nervous. But when I invite students to do experiments in the classroom, the performance will be more stable because the environment is different from the lab. The negative result is too few of people can participant into the test due to the situation in school.[7] The reason that why I do this research is because expand the scope of knowledge and vision: research can help people deeply understand the nature of things, learn more knowledge and information, so as to expand the scope of knowledge and vision. For example, history researchers can gain a deeper knowledge and understanding of historical events and people by reading

books and materials.[8]

**Enhance problem solving skills:** People who enjoy research often have strong analytical and reasoning skills, which gives them an edge when it comes to problem solving. Through experiments and thinking, researchers are able to find the nature of problems and find suitable solutions, which can be applied to daily life and work.

**Enhance creativity and innovation:** Researchers can come up with innovative ideas and problem-solving solutions by thinking deeply and digging into the essence of things. For example, designers can come up with unique and innovative ideas when researching new product designs.

**Boost self-confidence and self-awareness:** People who enjoy research usually have clear goals and plans and work hard to achieve them. When they achieve their goals, they will feel satisfied and confident, along with a clearer understanding and grasp of their own abilities and areas of study.

**Accumulate spiritual wealth and improve their own quality:** In the process of research, researchers can accumulate spiritual wealth and materialize results, which not only benefits their own development, but also improves their educational wisdom and their own quality.[9]

**Mastering the nature of the problem:** Researchers can master the nature of the problem and become experts in the field by overcoming scientific problems, which helps them to be more comfortable in work and life.[10]

**Get the right to speak:** After mastering the right to speak in a certain field, researchers can resolve conflicts with their own prestige and rhetoric, which is convincing.

To sum up, research can not only enrich one's knowledge and vision, but also enhance one's problem-solving ability, creativity, self-confidence, as well as accumulate spiritual wealth and improve one's personal quality. At the same time, research can also help researchers grasp the nature of the problem and within the professional field.[11]

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