

# Test Anxiety Research: Twenty First Century in Retrospect

Wahied Khawar Balwan<sup>1\*</sup>, and Sachdeep Kour<sup>2</sup>

<sup>1</sup>Department of Zoology, Govt. Degree College Kilhotran, Jammu & Kashmir, India

<sup>2</sup>Educator at Cypress Fairbanks Independent School District, Houston, Texas, USA

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\*Corresponding author: Dr. Wahied Khawar Balwan

Department of Zoology, Govt. Degree College Kilhotran, Jammu & Kashmir, India

## Abstract

Test anxiety is a type of performance anxiety. It can affect anyone from elementary students up to doctoral research candidates. Most of us experience some degree of stress or anxiety before taking an exam. However, when this distress becomes so excessive that it interferes with performance on an exam, it is known as test anxiety.

**Keywords:** Test anxiety, Yerkes-Dodson law, Test-anxious students, Perfectionists.

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## INTRODUCTION

School and college students usually feel nervous and anxious before the exam which is quite normal; a little nervousness can help students to perform better in the exam. However, feeling extreme stress and nervousness before and during an exam, which affects the performance of students in the exam is not normal, it is called test anxiety. A little bit of nervousness can be helpful, making one feel mentally alert and ready to tackle the challenges presented in an exam [1]. The *Yerkes-Dodson law* suggests that there is a link between arousal levels and performance. Essentially, increased arousal levels can help a student to do better on exams, but only up to a certain point [2]. Once these stress levels cross that line, the excessive anxiety one might be experiencing can actually interfere with test performance. Excessive fear can make it difficult to concentrate and the student might struggle to recall things that he/she has studied. The student might feel like all the information he/she spent so much time reviewing suddenly seems inaccessible in their mind. They blank out the answers to questions to which they knew the answers. This inability to concentrate and recall information then contributes to even more anxiety and stress, which only makes it that much harder to focus their attention on the test.

### WHAT IS TEST ANXIETY?

Test anxiety is a psychological condition in which people experience extreme distress and anxiety in testing situations [3]. While many people experience some degree of stress and anxiety before and during exams, test anxiety creates significant barriers to

learning and performance. Research suggests that high levels of emotional distress have a direct correlation to reduced academic performance and higher overall student drop-out rates [4]. Test anxiety can have broader consequences, negatively affecting a student's social, emotional and behavioral development, as well as their feelings about themselves and school.

Test anxiety is prevalent amongst the student populations of the world [5]. It has been studied formally since the early 1950s beginning with researchers George Mandler and Seymour Sarason [6]. Sarason's brother, Irwin G. Sarason, then contributed to early investigation of test anxiety, clarifying the relationship between the focused effects of test anxiety, other focused forms of anxiety, and generalized anxiety.

Researchers suggest that between 25 and 40 percent of students experience test anxiety [7]. Highly test-anxious students score about 12 percentile points below their low anxiety peers [8]. Students with disabilities and students in gifted education classes tend to experience high rates of test anxiety [9]. Students who experience test anxiety tend to be easily distracted during a test, experience difficulty with comprehending relatively simple instructions, and have trouble organizing or recalling relevant information.

### WHAT CAUSES TEST ANXIETY?

Any kind of anxiety is a reaction to anticipating something stressful. Like other anxiety reactions, test anxiety affects the body and the mind.

While test anxiety can be very stressful for students who experience it, many people do not realize that is quite common. Nervousness and anxiety are perfectly normal reactions to stress. For some people, however, this fear can become so intense that it interferes with their ability to perform well. For many students, test anxiety can be a combination of things. Poor study habits, poor past test performance, and an underlying anxiety problem can all contribute to test anxiety [10].

According to the *Anxiety and Depression Association of America*, test anxiety in students stems from three things:

1. **Fear of Failure.** Sometimes we put so much pressure on ourselves to do well that our fear of failure can overcome us. Students may be prepared, but fear can derail their self-confidence.
2. **Lack of Preparation.** Without a solid grip on the content for an upcoming test, students might become stressed because they know they'll probably do poorly on the test.
3. **Poor Test History.** Students who have had trouble testing in the past are prone to develop test anxiety. Instead of looking at the possibility of improving on the next test, they develop a negative mindset and doubt their talents. For example, they might think, "If I couldn't pass the last test, why will this one be any different?"

### **BIOLOGICAL CAUSES**

In stressful situations, such as before and during an exam, the body releases a hormone called adrenaline. This helps prepare the body to deal with what is about to happen and is commonly referred to as the "fight-or-flight" response. Essentially, this response prepares you to either stay and deal with the stress or escape the situation entirely.

In a lot of cases, this adrenaline rush is actually a good thing. It helps prepare you to deal effectively with stressful situations, ensuring that you are alert and ready. For some people, however, the symptoms of anxiety they feel can become so excessive that it makes it difficult or even impossible to focus on the test.

Symptoms such as nausea, sweating, and shaking hands can make people feel even more nervous, especially if they become preoccupied with these test anxiety symptoms [11, 22-24].

### **MENTAL CAUSES**

In addition to the underlying biological causes of anxiety, there are many mental factors that can play a role in this condition. Student expectations are one major mental factor. For example, if a student believes that she will perform poorly on an exam, she is far more likely to become anxious before and during a test.

Test anxiety can also become a vicious cycle. After experiencing anxiety during one exam, students may become so fearful about it happening again that they actually become even more anxious during the next exam. After repeatedly enduring test anxiety, students may begin to feel that they have no power to change the situation, a phenomenon known as *learned helplessness*.

### **WHO'S LIKELY TO EXPERIENCE TEST ANXIETY?**

People who worry a lot or who are perfectionists are more likely to have trouble with test anxiety [12]. People with these traits sometimes find it hard to accept mistakes they might make or to get anything less than a perfect score. In this way, even without meaning to, they might really pressure themselves. Test anxiety is bound to thrive in a situation like this.

People who are often "perfectionists" have a higher chance of developing test anxiety because they hold themselves to unrealistically high standards. They find it hard to accept mistakes and to get anything less than a perfect score. In this way, even without meaning to, they might really pressure themselves and become stressed.

### **WHAT ARE THE SYMPTOMS OF TEST ANXIETY?**

The symptoms of test anxiety vary considerably and range from mild to severe. Some students experience only mild symptoms of test anxiety and are still able to do well on exams. Other students are nearly incapacitated by their anxiety, performing dismally on tests or experiencing panic attacks before or during exams [13].

According to the *Anxiety and Depression Association of America*, symptoms of test anxiety can be physical, behavioral, cognitive, and emotional [14].

#### **Physical Symptoms**

Physical symptoms of test anxiety include sweating, shaking, rapid heartbeat, dry mouth, fainting, and nausea. Milder cases of test anxiety can cause a sense of "butterflies" in the stomach, while more severe cases can cause physical illness such as nausea, diarrhea, or vomiting.

#### **Emotional Symptoms**

Emotional symptoms of test anxiety can include depression, low self-esteem, fear, anger, distress, and a feeling of hopelessness. Students might experience negative thoughts (rumination about past poor performances, consequences of failure, feeling inadequate), mind going blank, and racing thoughts. Students often feel helpless to change their situation or belittle and berate themselves for their symptoms and poor test performance.

### Cognitive and Behavioral Symptoms

Cognitive and behavioral symptoms can include avoiding situations that involve testing. This can involve skipping class or even dropping out of school. In other cases, people might use drugs or alcohol to cope with symptoms of anxiety. Other cognitive symptoms include memory problems, difficulty concentrating, thinking negatively, comparing you to others, and procrastinating. Fortunately, there are steps that students can take to alleviate these unpleasant and oftentimes harmful symptoms. By learning more about the possible causes of their test anxiety, students can begin to look for helpful solutions.

### What are the ways to cope with test anxiety?

Everything takes time and practice. The way to beat test anxiety is no different. Although it won't go away overnight, facing and dealing with test anxiety will help you teach stress management, which can prove to be a valuable skill in many situations besides taking tests. Following are some of the strategies to help students either prevent or minimize test anxiety:

- Learn how to study efficiently. Your school may offer study-skills classes or other resources that can help you learn study techniques and test-taking strategies. You'll feel more relaxed if you systematically study and practice the material that will be on a test [15].
- Study early and in similar places. It's much better to study a little bit over time than cramming your studying all at once. Also, spending your time studying in the same or similar places that you take your test can help you recall the information you need at test time.
- Establish a consistent pretest routine. Learn what works for you and follow the same steps each time you get ready to take a test. This will ease your stress level and help ensure that you're well-prepared.
- Talk to your teacher. Make sure you understand what's going to be on each test and know how to prepare. In addition, let your teacher know that you feel anxious when you take tests. He or she may have suggestions to help you succeed.
- Learn relaxation techniques. To help you stay calm and confident right before and during the test, perform relaxation techniques, such as deep breathing, relaxing your muscles one at a time, or closing your eyes and imagining a positive outcome [15].
- Don't forget to eat and drink. Your brain needs fuel to function. Eat the day of the test and drink plenty of water. Avoid sugary drinks such as soda pop, which can cause your blood sugar to peak and then drop, or caffeinated

beverages such as energy drinks or coffee, which can increase anxiety.

- Get some exercise. Regular aerobic exercise, and exercising on exam day, can release tension.
- Get plenty of sleep. Sleep is directly related to academic performance. Preteens and teenagers especially need to get regular, solid sleep. But adults need a good night's sleep, too, for optimal work performance.
- Don't ignore a learning disability. Test anxiety may improve by addressing an underlying condition that interferes with the ability to learn, focus or concentrate — for example, attention-deficit/hyperactivity disorder (ADHD) or dyslexia.<sup>[15]</sup> In many cases, a student diagnosed with a learning disability is entitled to assistance with test taking, such as extra time to complete a test, testing in a less distracting room or having questions read aloud.
- See a professional counselor, if necessary. Talk therapy (psychotherapy) with a psychologist or other mental health professional can help you work through feelings, thoughts and behaviors that cause or worsen anxiety. Ask if your school has counseling services.

### How can teachers help to reduce test anxiety in their students?

- Share good study habits. Many students cram for tests the night before. We've all done it, but you can encourage your students to not make it a habit. Instead, encourage them to study in small increments leading up to a test.
- Emphasize that one test does not define who the student is. Remind your students that a test is only a test. It does not define someone's self-worth. Let your students know that doing poorly on a test does not represent the end of the world.
- Share relaxation techniques. Have your students stand up and shake out any tense muscles before a test. Have them close their eyes and breathe deeply. Let them know that everything will be okay.<sup>[16]</sup>
- Encourage students to get enough sleep the night before. A good night's rest can make all the difference. Encourage your students to get to bed at a reasonable time the night before a test.
- Open your door to students. Let your students know that you're always there to listen.

### Diagnosis of test anxiety

Test anxiety can be diagnosed using the Diagnostic and Statistical Manual-IV, under the classification of *social phobia*. Social phobias are

characterized by a marked and persistent fear of social or performance situations in which embarrassment may occur. In order to be diagnosed as suffering from a social phobia, the DSM-IV states that the individual must present four different factors [17].

- Must show an immediate anxiety response when exposed to the feared social or performance situation.
- Must show various attempts to avoid social or performance situation, or sometimes endure it but with extreme fear.
- Must experience a disruption to normal activities due to the avoidance or fear associated with the situation
- Must have experienced the symptoms for at least six months.

#### Other variables related to test anxiety are

- Obsessive compulsive disorders
- Perfectionist tendencies and unrealistic expectations
- Negative self-esteem, self-statements, and criticism
- Poor motivation or lack of confidence
- Stereotype threat
- Inadequate study and test-taking skills
- Poor eating, sleeping and exercising habits

#### Treatment of test anxiety

Test anxiety can be unpleasant and stressful, but it is also treatable. If you believe that test anxiety is interfering with your ability to perform well, try utilizing some self-help strategies designed to help you manage and lower your anxiety levels. Medication is usually not recommended to treat test anxiety; instead, standard suggestions include sleep, proper nutrition, and exercise, meditation, studying without stress, and enacting habits to reduce stress during the test [18]. However, if you are still struggling to manage your test anxiety and need extra help, talk to your school counselor, mental health practitioner, or your primary care physician for more advice about treatments that are available.

Depending on the severity of your symptoms, your physician may also recommend *cognitive-behavioral therapy* (CBT), anti-anxiety medications, or a combination of both. CBT focuses on helping people change both the behaviors and underlying thoughts that contribute to unwanted behaviors or feelings.

Anxiety is an emotional and behavioral disorder caused by the activation of sympathetic nervous system. In the domain of education, high level of anxiety is often experienced by students during performance related activities such as, exams. In fact, academic examinations and school work are considered to be the most stressful events of adolescent's life. Inefficient study, night study before exams, lack of

review/revision of study materials, emotional factors, and negative/irrational thinking about exams are some of the causes of exam anxiety. Although some level of anxiety among students is essential to achieve success in exams, too much of it can have adverse effect on their performances. Importantly, in students, high level of anxiety could have an impact on working memory, reasoning abilities, self-esteem, academic performance, and achievement. Anxiety in students can affect their physical and psychological characteristics causing panic attacks, which makes them, go blank during exams, feel helpless/cold/nervous, have sweaty palms/fast breath/palpitation and could even cause stomach upset. Test anxiety is when someone feels anxious, nervous, or worried about an upcoming assessment or project. Test anxiety is quite common. While people have the skills and knowledge to do very well in testing situations, the excessive anxiety impairs their performance. The severity of test anxiety can vary considerably from one person to another. It is normal to feel a little nervous and stressed before an upcoming exam. But for some people, this sense of nervousness is more intense. The nervousness they feel before a test can be so strong that it interferes with their concentration or performance. Test anxiety can lead to an upset stomach, a headache, or other physical symptoms. Some people might feel shaky or sweaty, or feel their heart beating quickly as they wait for the test to be given out. A student with strong test anxiety may even feel like he or she might pass out or throw up [19-21].

## CONCLUSION

Assessments are important. They're used to measure student growth and proficiency. They help identify what's working and what needs to be adjusted. However, test anxiety can muddy assessment results, painting an inaccurate portrait of performance. If a student does poorly on a test but knows the content, the results don't accurately reflect that a curriculum is working or that the student is growing. By acknowledging test anxiety and using techniques to minimize its effects, we as educators can do our best to minimize the chance of that happening. The students need to understand that managing test anxiety starts one day at a time. If you're taking care of yourself, thinking positively, and allowing yourself to make mistakes along the way, then you are likely to feel more in control when you show up to take a test. Consider today how you can gain back control of your future and perform well on an upcoming test!

#### Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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