



ANXIETY? STAY AWAY FROM ME!

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YOUNG REVIEWERS:



MASSIMO

AGE: 6



MONICA

AGE: 9



PALLAV

AGE: 9

Have you ever felt anxious? How do you usually react when you are afraid of something? Anxiety is a normal feeling that everyone gets from time to time. Since it is an unpleasant feeling, people often try to avoid situations that make them feel that way. For example, skipping school because you have to give a presentation in front of the whole class. Some people can feel too much anxiety. Anxiety makes them nauseous, and they might start to stutter. In our work, we would like to discuss “avoidance of learned fear”. In this article, we will explore anxious feelings and whether people tend to avoid things they are anxious about.

ANXIETY—HELPFUL BUT UNPLEASANT

Imagine that your best friend, Alice, must give a presentation at school. Sometimes Alice stutters when talking in front of a group. She is scared that her classmates will laugh at her during her presentation. Even days before the presentation, she feels anxious. Why? She cannot be

ANXIETY

An unpleasant feeling of nervousness, worry, and/or unease about something. It occurs when we do not know what will happen in the future.

AVOIDANCE OF LEARNED FEAR

Avoiding a situation that could lead to a situation we are anxious about—like avoiding school to avoid giving a presentation.

sure that her classmates will make fun of her. Alice tells you that she wants to skip school and stay home on presentation day. It seems she would like to avoid going to school because she does not want to give the presentation.

How do you feel when you have to give a presentation at school? Do you feel anxious? Everyone feels anxious from time to time, and this is normal. **Anxiety** helps us by preventing dangerous things from happening. For example, you might feel anxious riding your bicycle when there are lots of other bikes and pedestrians around, so you ride slowly and thus reduce the chances of having an accident. However, sometimes anxiety can be severe and unnecessary, and then it is not always helpful [1]. For example, what if you feel anxious even when there are no other bicycles on the path. If anxiety is very severe and unhelpful, it can make a person's daily life very difficult [2].

We all respond differently when we are anxious. Some people feel it in their bodies. They might get stomachaches, start trembling, or stutter. Other people might even start crying when they have anxiety. Overall, feeling anxious is often an unpleasant experience.

AVOIDANCE OF LEARNED FEAR

People do various things to prevent the unpleasant feeling of being anxious. One way to deal with anxiety is to avoid the whole situation, like Alice wants to do. She could pretend to be sick on the day of her presentation, so that she would not have to go to school (Figure 1). Alice shows what is called **avoidance of learned fear**. Problem solved, right? Well, not really...

CONSEQUENCES OF AVOIDANCE

Avoiding the things we are anxious about might give us temporary relief, but it can lead to other problems. If Alice misses school the day of her presentation, she will probably still have to give it another day. If she keeps staying home to avoid it, she will miss too much school and this could cause her grades to slip. She would also miss seeing her friends. Thus, avoidance might *not* be the best way to deal with anxiety. However, when people are very anxious, the consequences of avoidance are not what worries them. At the moment, Alice would rather get bad grades than give a presentation in front of the class.

Even if Alice accepts the consequences of skipping the presentation, is avoidance still the best solution—will it help her to deal with her anxiety? Again, not really. If she avoids going to school, she will never experience what it is *really like* to give a presentation. She will never have the chance to learn that her feared outcomes probably will not

Figure 1

Alice is thinking about going to school, but she must give a presentation tomorrow. She is worried that people will laugh at her. Alice is considering not going to school, because then she will not have to give the presentation and she will not be laughed at. Avoiding school would make her feel less anxious at the moment.



Figure 1

happen—that the class will not laugh at her and might actually enjoy her presentation! As a result, she will stay anxious about presentations and she might avoid them for the rest of her life!

HOW DID WE STUDY AVOIDANCE?

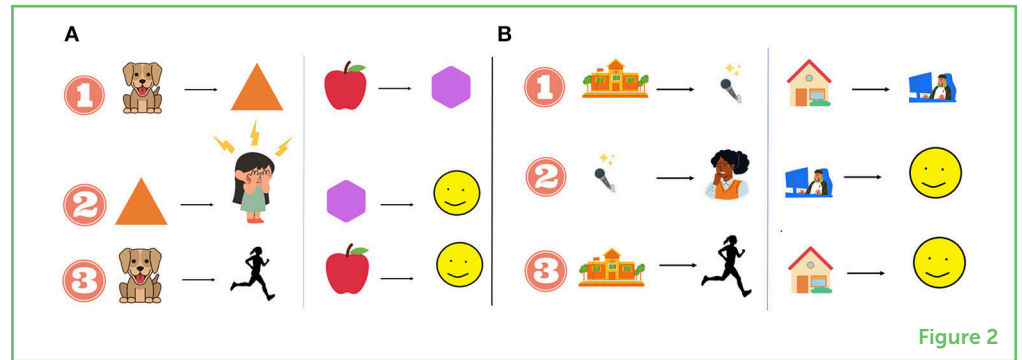
We were curious about whether people actually experience avoidance of learned fear. To do this, we invited participants into our lab, where we gave them a task that measured whether they would show avoidance [3]. It is easier to study avoidance of learned fear in the lab, because otherwise we would have to go to a lot of different schools to study people who avoid presentations, for example.

Our task had three basic steps (Figure 2):

First, we showed participants two picture combinations. One was a dog paired with an orange triangle, and the other was an apple paired with a purple hexagon. In the example of Alice, the school (dog) is paired with the presentation (orange triangle). And home (purple hexagon) is paired with something she enjoys, like playing video games (apple).

Figure 2

To study whether people experience avoidance of learned fear, we did an experiment. **(A)** First, we paired the dog with the orange triangle and the apple with the purple hexagon. Then, the orange triangle was paired with a mild electric shock—and the purple hexagon was not. Third, we asked participants how badly they wanted to avoid the dog compared to the apple. **(B)** In the example of Alice, she associates school with giving the presentation and a negative outcome. However, she associates being home with playing videogames, which she enjoys. Therefore, we expect Alice to avoid school more.



Then, to mimic an anxiety-causing situation, we showed participants the orange triangle again, but this time it was linked to something negative: when they saw it, they received a mild electric shock via a sensor attached to their hands. Do not worry! The electric shock felt like little more than a tickle. In contrast, they did not get a shock after we showed them the purple hexagon again. The electric shock represents the negative outcome Alice expects from giving her presentation.

Third, we showed participants the dog and the apple again, and asked them to tell us how badly they wanted to avoid the dog and the apple. Since the dog was associated with the orange triangle and the orange triangle was associated with the electric shock, we expected them to want to avoid the dog more than the apple, just like Alice wants to avoid school because it is associated with giving a presentation.

WHAT DID WE FIND?

As we expected, our results showed that people avoid situations they are more anxious about compared to situations that they are less anxious about. During the task, the participants wanted to avoid the dog because the dog predicted the orange triangle, and the orange triangle predicted the electric shock! However, people were less likely to avoid the apple, given it predicted the purple hexagon, and the purple hexagon did not give an electric shock. In Alice's situation, she avoids going to school to prevent giving a presentation that she is anxious about. However, she does not avoid going home because playing video games does not give her anxiety. So, we can conclude that people *do* show avoidance of learned fear!

WHAT HAVE WE LEARNED?

Everyone feels anxious, and that is normal! However, some people get really anxious, to the point that it affects their health and it influences their daily lives. Researchers like us conduct studies to try to help these people become less anxious and function better in

MINDFULNESS

A technique to become fully aware of where you are and what you are doing. It makes you live in the present moment and often helps with reducing anxiety.

COGNITIVE BEHAVIORAL THERAPY

A talking therapy that aims to find your problematic thought patterns. It helps with changing your thoughts, feelings and behavior. It is often used when people experience severe anxiety.

their lives. These studies often help us to create techniques that can reduce people's anxiety, such as breathing exercises and **mindfulness**. Laboratory findings also help improve treatments for severe anxiety, such as **cognitive behavioral therapy**.

Now you know that if people think something scary might happen in the future, they will do whatever it takes to avoid it. For example, Alice taught herself to stay away from a presentation at school. While this makes her anxiety less in the moment, it has negative consequences. Missing school could make her grades go down, and she will not see her friends. What is more, avoiding presentations prevents her from learning that her feared outcome—people laughing at her—most likely will not happen. So, in summary, we should all confront our fears, because avoiding them will not help us. If you are anxious about presentations, go to the front of the classroom and give that talk!

ORIGINAL SOURCE ARTICLE

Wong, A. H. K., and Pittig, A. 2022. Avoiding a feared stimulus: modeling costly avoidance of learnt fear in a sensory preconditioning paradigm. *Biol. Psychol.* 168:108249. doi: 10.1016/j.biopsycho.2021.108249

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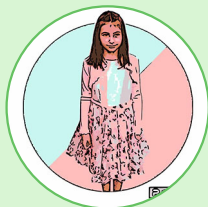
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YOUNG REVIEWERS



MASSIMO, AGE: 6

Hey, I am Massimo. I am 6 years old. I am curious and I like to learn new things. My passions are dinosaurs, astronauts, and football. I like ice-cream and playing video games with my sister. I love exploring nature and running in London's parks.



MONICA, AGE: 9

My name is Monica. I am 9 years old and live in London. Reading, science, art, and swimming are my favorite things to do. Also, I play tennis and piano, and I like going to Italy during the holidays to play with my grandparents and friends. I enjoy reading books, cooking, using the computer, and watching cartoons.



PALLAV, AGE: 9

I am Pallav. I am going to grade 5 in June 2023. I am a learning karate and swimming. I love excavators, cars and other automobiles and read a lot about them. I love sports including badminton and basketball. I go to parks with my brother. I am also an astronomy enthusiast. Reading books are one of my most favorite past times and I read Roald Dahl, Sudha Murthy, Ruskin bond books along with some mystery novels.

AUTHORS



DINAND VAN DER HOEK

I am a master's student in clinical psychology, specializing in children and adolescents like you! I study at the Erasmus University Rotterdam in The Netherlands. I am interested in how children develop and how their brains work. I am currently writing my thesis about depression and a specific region in the brain, called the nucleus accumbens. After I complete my master's degree, I would like to work with children with autism and maybe open my own psychological practice 1 day!



KIRSTEN S. MULLER

I studied for a master's degree in clinical child and adolescent psychology at the Erasmus University Rotterdam in The Netherlands. I enjoyed it a lot. I also did a research internship at the Erasmus Medical Center. This research was about measuring the attention of children with ADHD using eye-tracking. I am really interested in the development of children. I would love to pursue a research career. My dream is to get a Ph.D. and become a researcher in this field.

**ELIZE DE ZWART**

I studied clinical psychology at the Erasmus University Rotterdam in the Netherlands. I am most interested in child development and how it is related to anxiety in childhood. I wrote my thesis on how childhood anxiety is related to getting support from friends and being bullied. I also investigated whether these relationships were different for boys and girls. Currently, I work as a child psychologist and try to help children feel better (for example, not anxious)!

**ANDRE PITTIG**

I am a professor of translational psychotherapy at the Institute of Psychology the Friedrich-Alexander-University (FAU) Erlangen-Nürnberg in Germany. In my research, I follow the slogan: "from the laboratory to everyday life and treatment." Using simple experiments, my vision is to better understand the underlying processes and mechanisms for the development and treatment of mental health disorders and to improve their psychotherapeutic treatment.

**ANITA HARREWIJN**

I am an assistant professor in the Clinical Psychology Department of the Erasmus University Rotterdam in The Netherlands. I am interested in why some children get anxiety disorders while other children do not. I study processes that may play a role in this, such as responding to stressful situations (such as giving a speech) and focusing your attention on scary things. In my research, I look at brain activity, heart rate, sweat responses, and behavior.

**ALEX H. K. WONG**

I am an assistant professor in the Clinical Psychology Department at the Erasmus University Rotterdam in the Netherlands. My research interests focus how people develop anxiety-related disorders. In particular, I am interested in how people acquire fear and avoidance of certain objects, and how those feelings spread to other objects. I am also interested in trying to reduce unhealthy fear and avoidance, and why people with certain characteristics are more likely to have these feelings.

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