



## HOW LOOKING AT A PICTURE OF A LOVED ONE CAN IMPROVE YOUR HEARING

Shir Nagar, Boaz M. Ben-David and Mario Mikulincer\*

Baruch Ivcher School of Psychology, Reichman University, Herzliya, Israel

### YOUNG REVIEWERS:



ASA

AGE: 9



DAVID

AGE: 10

### ATTACHMENT THEORY

A concept in psychology that emphasizes the importance of early emotional bonds between a child and their caregivers, shaping future relationships and emotional wellbeing.

According to one of the most important theories in psychology, called attachment theory, being close to a person who loves and supports us in times of need evokes a sense of security that allows us to explore the world around us. But can this sense of security also give us “superpowers”, such as an improved sense of hearing? To test this, we conducted an experiment in which we performed two hearing tests: one was a regular test and, in the other, participants looked at a picture of a trusted loved one. The results were very surprising—when the participants looked at a picture of their loved one, their threshold for hearing was significantly better. So, the next time you try to hear a whisper, try to imagine the face of someone you love—you might be able to hear better.

Psychology is a science in which we try to study human behaviors and experiences in the laboratory, so that we can explain them. This article deals with a laboratory study we conducted in a field of psychology known as **attachment theory**. Before we dive into the details of the

study, we will explain what attachment theory is and tell you about the topic that we wished to investigate.

## HOW DOES ATTACHMENT AFFECT DEVELOPMENT?

Imagine a small baby who comes into the world completely helpless—vulnerable, unable to protect himself from dangers, and fearful because the world is full of things he does not understand. How does he manage to deal with his fears, stay alive, and learn how to protect himself against danger? We all know how—with the help of his parents or another adult who loves him, feeds him, protects him, calms him down, and nurtures his learning skills (Figure 1).

### Figure 1

The way a mother hugs and cuddles her baby can calm him, allowing him to explore his surroundings peacefully and confidently.

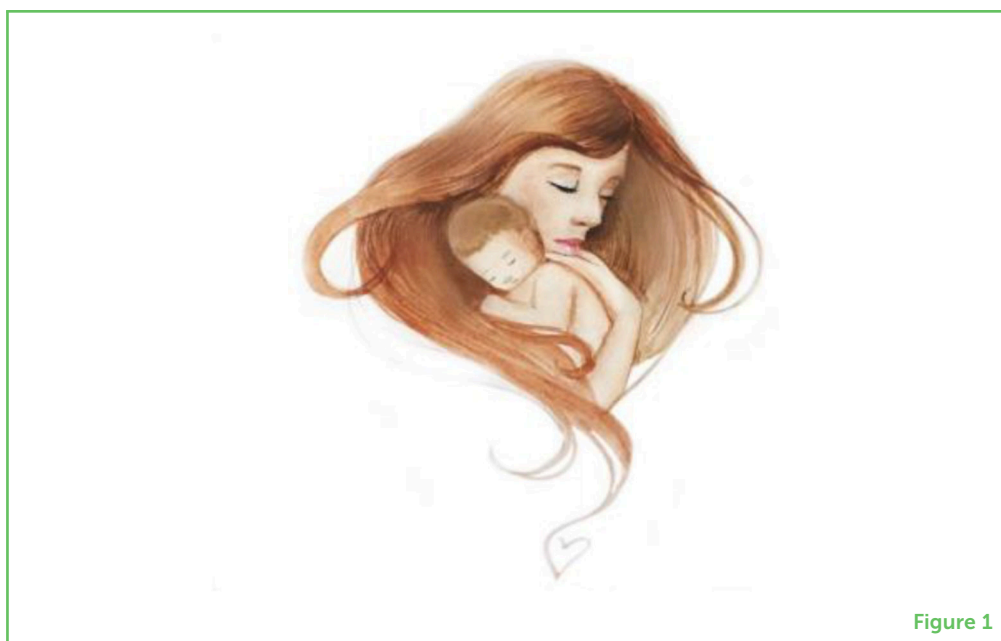


Figure 1

### ATTACHMENT FIGURES

Individuals who provide a child with emotional security and support when that child deals with threats and challenges. Parents, friends, teachers, and caregivers are possible examples.

### ATTACHMENT SECURITY

The sense that the world is a safe place and that we can explore the world with confidence that our attachment figures will be there to support us when needed.

According to attachment theory (we will refer to it as “the theory” from here on), which was developed by the English psychiatrist John Bowlby [1] in the middle of the 20<sup>th</sup> century, babies are born with a readiness to be close to people who are willing and able to protect and support them in times of danger and threat. These people are called **attachment figures** in the theory.

The baby’s goal is to feel protected and safe. The baby needs his parents to pick him up, hug him, and provide for his basic needs such as food and diapering. However, to explore the world, learn new things without fear, and build his personality, the baby also needs his parents to give him the feeling that there is someone to trust and that he is not alone in the world. According to the theory, this feeling is called **attachment security**. A baby who grows up with parents or other adults who give him this feeling will allow himself to take risks, explore the world around him, learn, feel good, and make friends [1]. But if, for some reason, the baby does not trust his attachment figures, his world

might be scary, harsh, and threatening, and he will find it difficult to explore the world with ease and openness [1].

To illustrate, imagine a baby learning to walk. At first, he takes a few steps and falls. He gets hurt, and now he is afraid to keep trying. Naturally, the baby will look toward his parents. If he finds a reassuring look and a loving and relaxed attitude that conveys the message “we are here for you, we believe in you, and you can count on us”, he will probably get up and keep trying.

## SECURITY MAKES US INDEPENDENT

Does a baby *constantly* need a loving and supportive person close by to feel safe to explore the world and learn new things? According to the theory, the answer is no [2]. If we constantly needed a loving person by our side, we would be unable to go out into the world and grow. Instead, we would become dependent on them and unable to learn how to face challenges on our own. The theory holds that a baby not only benefits from a close and loving relationship with attachment figures, but also creates what we call **internal working models**- a system of beliefs and expectations regarding the warm treatment he will receive from these figures in the future [2]. In other words, the baby learns and remembers how the attachment figures took care of him, and he feels assured that he will receive this same caring treatment in the future as well, if he needs it. In this way, the attachment figures still exist in his heart and mind, even when he is not around them.

Therefore, although a small baby needs his parents close by when he begins to take his first steps, he can do the rest of the learning alone. He does not need to constantly be physically close to his parents, because his memory of his parents as loving and supportive figures exists in his mind and can provide the sense of security that he needs.

## WE NEED SECURITY THROUGHOUT LIFE

What happens to a baby when it grows into a child, a teenager, and an adult?

According to the theory, the need to be close to a loved one accompanies us throughout life. The sense of security provided by an attachment figure will make us feel and function at our best, even when we are adults and no longer dependent on our parents [3].

Even as we get older, expectations of future support based on memories of past support we received from attachment figures allow us to feel safe, even without being around them. It is often enough to look at a picture of a loved one, think about them, or remember a situation in which we felt loved. Even this action can help us to

### INTERNAL WORKING MODELS

A system of beliefs about an attachment figure (is she well-intentioned? Can she be trusted?) that reflects responses to the individual's need for closeness and support.

experience a sense of security, which allows us to relax, take risks, and explore the world openly and with full attention. Many studies have shown that this feeling of security allows children, teenagers, and adults to begin friendships, persist in their studies even when things get difficult, form and keep relationships, apply for jobs, and pay calm attention to their surroundings [3].

## COULD A FEELING OF SECURITY AFFECT HEARING?

As psychology researchers, we asked ourselves this question: If we know that a feeling of security allows children, teenagers, and adults to feel and function their best, will generating that feeling also allow them to sense the world better—specifically to hear better? If we asked a wide range of adults to look at pictures of or think about people who make them feel loved and safe, would it enable them to be more “open” to the world, and thus hear sounds that they would not otherwise hear?

## OUR STUDY

For this purpose, we planned a unique experiment [4], which consisted of three stages. In the first stage, we recruited 59 participants: 29 students in the 20–35 age range and 30 older people in the 60–75 age range. Each participant was instructed to bring a picture of an attachment figure that made them feel safe and secure. Our instructions were: “The photo should be a loved one. Someone you feel you can trust, who will be there for you if you need anything, who will understand what you need and respond accordingly”. In the next two stages of the experiment, we asked the participants to undergo routine hearing tests, conducted with a testing device called an **audiometer**. The hearing tests allowed us to examine the participants’ openness to the world around them, as manifested by an improvement in the sense of hearing (lower hearing thresholds).

In each of the hearing tests, the participants sat in front of a touch screen that displayed an image. In the first test, the participants looked at the image of their loved one (**Figure 2**) and, in the second test, they looked at either an empty circle or a picture of an unfamiliar stranger of the same gender and age as the person in the picture they brought with them. The participants were asked to touch the screen each time they heard a sound.

During the test, we played sounds in a variety of tones (like musical notes ranging from low to high), once to the right ear and once to the left. We played the sounds at a very high volume and gradually made them softer. When the participant did not respond, we assumed they did not hear the sound. We then turned up the sound until the participant responded, and then turned it down again until they did not.

### AUDIOMETER

A medical device that checks hearing thresholds, to diagnose conditions related to hearing and to identifying a hearing loss that requires treatment.

## Figure 2

A student participating in our hearing test, sitting in front of a picture of an attachment figure that fills him with a sense of security.

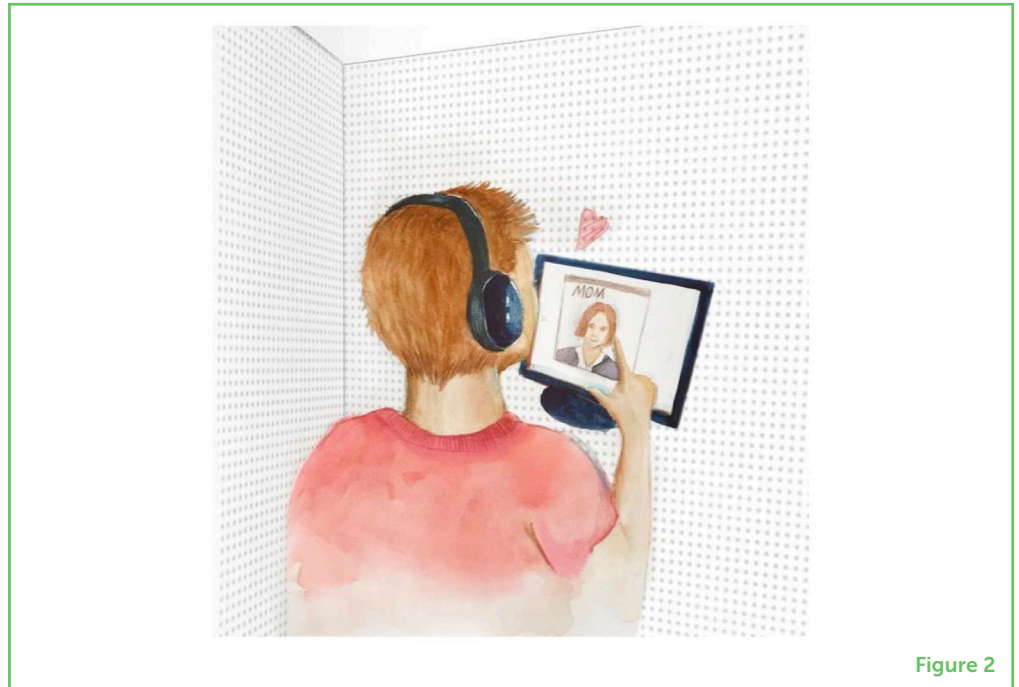


Figure 2

## HEARING THRESHOLD

The faintest sound a person can hear. Above the threshold the person can hear sounds, and below it they cannot. Hearing thresholds are calculated for each ear separately.

## DECIBEL (DB)

The unit of sound intensity, named after Alexander Graham Bell, an American inventor who, among other things, invented the telephone in 1876.

We did this several times. At the end of the process, we determined each participant's **hearing threshold**, that is, the lowest volume that they could hear. The experiment was conducted by a professional who performs medical hearing tests as part of her job, however, she did not know when participants were looking at a picture of their loved ones and when they were looking at a picture of a stranger or an empty circle.

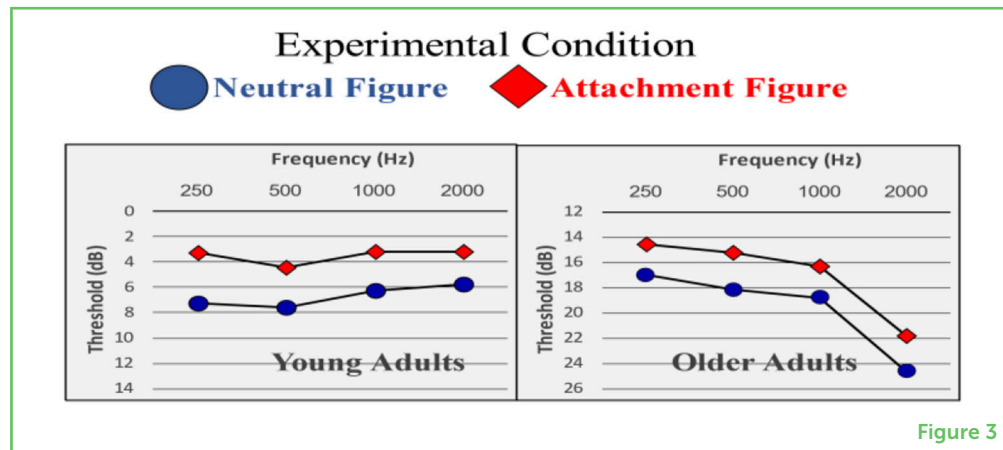
## OUR FINDINGS

The results of the experiment were exciting and surprising. Compared to looking at a picture of a stranger (or an empty circle), looking at a picture of an attachment figure improved the hearing (lower hearing thresholds) of participants by an average of two **decibels** among both the group of students and the group of older people (Figure 3)—a statistically significant difference. For older adults in particular, a two-decibel improvement may increase the ability to understand a conversation [5]. It is important to note that this improvement in hearing was found in both participants' ears, and for all the different sounds played. That is, the symbolic presence (a picture) of a loved one was enough to make participants in our study hear sounds that they were not able to hear before. We gave them the superpower of hearing! This study is the first of its kind ever carried out in the field.

These results show that a sense of attachment security, even one that we get from a picture, not only allows us to relax but can also cause our senses (in this case hearing) to open to the world. We hope that,

### Figure 3

Both young adults and older adults had lower hearing thresholds when they were looking at their attachment figure. This tells us that inducing feelings of security improved hearing. The X axis shows frequency, measured by Hertz (Hz). The Y axis shows the hearing threshold, measured by decibels (dB).



in the future, researchers will examine whether a sense of attachment security also improves the functioning of other senses—sight, touch, taste, and smell, and if images of non-human attachment figures, such as a pet, can also benefit our senses.

In conclusion, love seems to help us experience the world in new ways. When we feel safe and loved, we not only feel better, but also hear better.

### ORIGINAL SOURCE ARTICLE

Nagar, S., Mikulincer, M., Nitsan, G., and Ben-David, B. M. 2022. Safe and sound: the effects of experimentally priming the sense of attachment security on pure-tone audiometric thresholds among young and older adults. *Psychol. Sci.* 33:424–432. doi: 10.1177/09567976211042008

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## YOUNG REVIEWERS

### ASA, AGE 9

I study at the 'Community' school. I like sports (soccer), learning, cars and also animals, especially cats.



### DAVID, AGE 10

I am interested in physics, biology, chemistry and space, and I dream of becoming a scientist. I live in Bat Yam and participate in science programs at the Davidson Institute and youth science courses at Tel Aviv University. I am curious and love to study at school and at home. My hobbies are reading books, growing plants, doing mathematical puzzles, playing chess, and listening to podcasts in the fields of science and history as well as classical music. I also like sports—fencing, basketball, and swimming. Figures that are an inspiration to me are Israeli scientists who have won the Nobel Prize in various fields: Professors Aharon Chakhanover, Avram Hershko, Dan Shechtman, and Israel Oman.



## AUTHORS

### SHIR NAGAR

As a child, I was very curious. I loved reading books, learning, and asking questions. Therefore, when I grew up, it was natural for me to go into research. I investigate the way that the connection with our parents affects the way we experience the



world through our senses. In addition, I treat young people who have emotional and behavioral difficulties. In therapy, we talk and play together, which helps patients express their feelings. I recently became a mother to my sweet Roie, and this is what I am most proud of and enjoy. Through motherhood, I deeply feel the effects that a close bond between parents and children has on the way we experience life.



### **BOAZ M. BEN-DAVID**

I am a cognitive psychologist at Reichman University. This field of psychology deals with the study of systems such as memory, imagination, attention, and language. I initially studied for my bachelor's degree in physics, but psychology always intrigued me, so I studied for degree in psychology along the way. In a cognitive psychology class, I fell in love with the field and changed my plans! Today I am a professor in the field, and for the last 15 years I have mainly been researching the psychology of the sense of hearing. Among the questions I deal with are: Why do humans understand speech in a noisy situation better than programs like Siri do? What are the miraculous abilities that make it possible to understand speech in old age, even though the hearing is impaired? Most importantly, I am the father of two daughters (Hila, 11, and Noga, 15). In my free time, I run marathons and practice running on the Tel Aviv promenade and in park Yarkon.



### **MARIO MIKULINCER**

I am a psychologist at Reichman University researching ways of dealing with threats and challenges as well as interpersonal and social relationships. I completed my B.A., M.A., and Ph.D. in the psychology department at Bar-Ilan University, where I also served as the head of the department, and today I am a professor in the field. In 2007, I founded the School of Psychology at Reichman University. At the beginning of my career, I researched feelings of helplessness and reactions to the traumas of war and captivity. For the past 25 years, the main focus of my research has been on how a sense of attachment security helps us grow and thrive. I love art, flights of imagination, and playing with thoughts. I thank the hundreds of students I have guided to graduate degrees over the years (including Shir, the author of the article), and especially my sons, Dan and Alon, and my 5-year-old granddaughter May, who teach me firsthand how attachment allows us to blossom and grow.

\*[mario@runi.ac.il](mailto:mario@runi.ac.il)