



# Psychology of Performance

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## Abstract

**Purpose of Review** This article provides a brief overview of psychological factors that influence performance, such as performance anxiety and different kinds of stress. This review also provides a brief description of external and internal factors which may impact a performer and techniques that have been linked to better stress management and emotion regulation.

**Recent Findings** Numerous psychoneurobiological factors can influence the inner life of a performer and impact their ability to function. It is important for a performer and their care team to understand the potential impact of stress and traumatic stress on various layers of the nervous system, influencing body, and voice.

**Summary** Maintaining an understanding of various elements that may affect a performer and learning techniques to create stronger emotional and physical regulation can be beneficial for a performer.

**Keywords** Stress · Performance anxiety · Nervous system · Voice

## Introduction

“How does psychology affect the physiology and the physics of the singing voice? The more fully we can answer this question the better able we are to teach speakers and singers, or to treat their problems... The psychological ogre for performers is stage fright.” (pg. 28–29) [1]. The interest in how psychological factors can affect voice users has been a topic of discussion for decades.

Trusting the instincts for successful performance lies at the heart of the performer. Developing those instincts requires the performer to address their muscle memory, performance readiness, and psychological preparedness. The famous singer Andrea Bocelli admits to performance stress, stating “Stage fright is my worst problem. A voice is very intimate. It’s something of your own. So there’s always this fear, because you feel naked. There’s a fear of not reaching up to expectations.” As expressed

in Bocelli’s quote, psychological factors can truly have an impact on a performer’s voice, even the most experienced ones.

For voice performers, to reach optimal performance, there first needs to be an understanding of the numerous factors that can affect their performance. Importantly, as a performer learns about the forces influencing their process, an individual can also begin to learn how to utilize this knowledge to their benefit. Biological and environmental factors can be at play, often together. For example, the natural length of one’s vocal folds and the structure of their intrinsic laryngeal muscles are biological factors. However, the person’s emotional experience in the moment can influence these structures in a way that alters on how they function [2, 3••].

Psychological and emotional processes do not simply occur “in our mind.” The complexity of our nervous system demonstrates that its layers are connected. If we become excited and nervous about sharing our voices on stage, it is not just the “thought” of it that takes form; our pupils may enlarge, our hearts may beat faster, and specific chemicals are activated and released in our bloodstream [4]. In this article, the authors discuss the definition of performance-related stress, psychological factors that can influence performance, and techniques utilized when helping performers achieve balance and well-being.

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## Performance and Psychological Factors: Anxiety, Conflicts, Perfectionism, and More

Performance is defined as “an act of staging or presenting a play, concert, or other form of entertainment” or “the action or process of carrying out or accomplishing an action, task, or function” (Oxford Dictionary, 4/2/23, online). These definitions consider the act of performing as an avocation or a vocation. For many, the act of performing for financial gain escalates the desire to excel, but the act of any performance brings in the possibility of failure, or not meeting our own expectations [5]. No matter how one defines performance, the fundamental components of successfully completing an action in the presence of an external observer seem to be present. These elements alone can create a psychological reaction on the part of the performing individual that can manifest in a variety of ways and potentially make a performer feel that they are no longer in control of such reaction [5].

Kenny [6] defines performance anxiety as anxious apprehension about the performance with underlying biological and/or psychological vulnerabilities. Dobos and colleagues emphasize that performance anxiety particularly manifests in situations when fear of negative evaluation is possible [7••]. Kenny found that several factors related to performance anxiety were inadequate preparation, lack of self-confidence, negative performance experiences, negative thoughts, and fear of the audience. Singers may be affected in these areas in both private and public venues [6]. Inadequate preparation indeed impacts a singer’s ability to move through a piece without having to remind oneself about what comes next, utilizing cognitive resources that could be invested elsewhere. A lack of self-confidence can create hesitation that can affect the delivery of the piece. Negative performance experiences can set a biased and fearful expectation, similarly to negative thoughts and fear of the audience. In 1988, Gates emphasized that nearly all performers have some degree of apprehension and performance and difficulty handling their nerves. Some careers have ended because of the difficulty coping with these symptoms [8, 9].

The severe effects on the body are discussed by Gates, as well as powerful internal conflicts and a need for acceptance. Similarly, Montello discussed maladaptive thoughts, identity issues, and performance-related trauma as factors affecting performers [10, 11]. Maladaptive thoughts are comparable to the internal conflicts mentioned by Gates [8]. These often refer to different internal self-criticizing viewpoints that intervene in the consciousness of the performer. It can be a struggle for a performer to deal with the already complex external factors and also to deal with internal voices that question their abilities and their performance success. Identity issues stem from

a performer identifying so deeply with their career that they could lose their sense of who they are if they were not be able to perform [10]. Performance-related trauma refers to an experience so painful it created trauma for the performer [6, 10]. This experience and its physiological manifestation can become activated when preparing for the next performance.

## Stress and Traumatic Stress: What Happens Internally

When a human is exposed to stress and especially traumatic stress, there are numerous reactions that take place in the central and peripheral nervous systems [12]. Here, we are only going to illustrate a few to elucidate the potency of these reactions and validate a singer’s experience when they occur. During stress, such as feeling exposed during an audition or performance, the sympathetic branch of the autonomic nervous system mobilizes and initiates what is commonly known as a “fight-or-flight” response [13]. This activation releases stress hormones in the bloodstream that can make an individual feel as though they are preparing to fight a bear or flee from it [14].

In circumstances where the stress was brought on by trauma, this stress reaction during an audition or a performance can be even more strongly activated, putting more stress on the singer. To make matters even more complex, a nervous system that was chronically traumatized—for example, in cases of childhood trauma—can react intensely to a stressful experience, sometimes veering towards what is known as “immobilizing,” freezing, blunting, shutting down, or dissociating. These reactions can also be brought on by the parasympathetic nervous system (commonly known as the “rest-and-digest” branch) when our brain sees a “fight-or-flight” response as futile [15, 16].

A singer experiencing sympathetic activation may describe feeling sweaty palms, chest pounding, fast breathing, or wanting to run. A singer experiencing the opposite activation can feel frozen in space, experience shallow breathing, and sense numbness [16]. Some individuals also may describe a combination or fluctuation of these states. No matter what reaction the singer is experiencing, this is generally heightened by any kind of stress and especially stress related to a reminder of previous trauma. An impactful combination can occur if an individual has childhood trauma and also performance-related trauma, facing an audition or performance. These types of situations can make the pressure seem insurmountable at times.

## Chronic Stress in the Voice User

Adverse childhood experiences are linked with psychoneurobiological sequelae that create a risk for disease and higher physical and mental morbidity rates in adults [16,

17••]. Early stress, such as childhood abuse and neglect, is linked to changes not only in the reactivity of the autonomic nervous system, but also disruption of the circadian rhythm, functional and structural changes in the central nervous system, dysregulation in the immune and metabolic systems, and differences in brain connectivity [17••, 18••]. Early life stress is also associated with epigenetic modifications that can alter gene expression and change vulnerability or resilience to stress [19]. All of these factors can create obstacles and difficulties for a voice user. The effects on the reactivity, sleep, and immunity can put a severe strain on an individual who is already attempting to engage in a task as demanding as performing.

It is not difficult to imagine that all factors discussed might affect one or more mechanisms involved in voicing (respiration, phonation, resonance, articulation, posture, alignment, cognition, and more) [2, 20]. These mechanisms are connected to various muscle systems and different branches of the nervous system. Thus, they can be affected by how those branches are impacted by stress-related reactivity. There is a great deal of unknown about these exact mechanisms, but some evidence is beginning to emerge.

Helou and colleagues discuss how intrinsic laryngeal muscles are affected by acute stress [3••]. Perrine and Scherer discuss the relationship between higher fundamental frequency and sympathetic arousal [21••]. Holmqvist and colleagues discuss the long-term effects of stress on voice, which can result in unpleasant vocal symptoms and complications in the future [22]. Van Mersbergen et al. discuss the relationship between vocal fold cycle closed quotients and negative affect [23]. Becker and colleagues discuss the relationship between childhood neglect and individuals identifying as “laryngoresponders,” individuals who sense that their stress manifests primarily in the larynx [24••]. Monti et al. discuss the relationship between anxious attachment and childhood neglect on certain measures of intensity of the singing voice [25]. Additionally, Monti and colleagues discuss the relationship between childhood trauma recall and elevated measures of vocal perturbation [26•]. These pieces of evidence make a strong case for the relationship between various types of stress and affective experiences on voice.

### When Regulation is Difficult and Current Strategies

Understanding the role of emotion regulation in performance anxiety is very important. An important element in emotion *regulation* is not only the emotional state being experienced, but the goal to influence its emotional trajectory (Gross et al., 2011), for example, wanting to be less sad in the face of sadness, or to appear calmer in an argument [27]. Theories that discuss the role of cognitive interpretation occurring with symptoms of arousal (such as heart rate increasing) emphasize that cognition

is important in how one interprets and manages the state they are in. The complexities the singer finds themselves in can also play a role. A singer can be dealing with their task at hand, their exposure to the audience, the emotions elicited by the music they hear, and several other factors. It is useful to keep in mind that not all forms of performance stress feel the same, or can be predicted by the same underlying factors [28••].

Some types of performance stress can be more linked to situational factors facing the voice user. Other types of performance stress may resemble a social anxiety disorder or may mimic symptoms of panic disorder with and without depression. Performers with performance anxiety may have underlying conditions, such as social anxiety disorder, post-traumatic stress disorder, and depression. All of these conditions can increase susceptibility to stage fright [7••].

Gross discuss various stages of emotion and emotion regulation in musicians' performances. A combination of the situation, where the attention is focused, the cognitive interpretation and the emotional response can lead to different outcomes [29]. There is certainly unpredictability in situations that singers find themselves in. However, being able to strategically plan and rehearse stressful aspects of the impending performance can be a beneficial management option.

Techniques of visualization to elicit emotions and behavioral rehearsal can help a performer rehearse several aspects before they are in the situation, and elicit the same emotions that intimidate them in a more secure setting [10]. Similarly, a singer can engage in mindfulness exercises to plan where their attention focus will be ahead of time. In this way, they will not be surprised by visual or auditory distractions during the performance. Mindfulness is also helpful in managing fear and anxiety differently, with a more curious rather than a self-protective lens.

Cognitive restructuring techniques can be helpful for the singer to learn strategies to help them modify the emotional appraisal of the performance situation. Cognitive restructuring helps individuals change their immediate interpretations of stimuli, in ways that are less activating for the fear centers of the brain and more activating of prefrontal cortex processes [30]. Additionally, progressive relaxation techniques, breathing techniques, and grounding techniques can be helpful in regulating arousal sensations that manifest for singers. Different techniques can be applied if the person finds themselves to be more hyper-aroused or hypo-aroused. When someone is deeper into a fight-or-flight state, slowing down and extending the exhalation compared to the inhalation is important. If someone is hypo-aroused, it is better to focus on grounding and mindfulness.

Shaw et al. tested a non-clinical form of *Acceptance and Commitment Therapy* administered by a singing teacher to a musical theater student with intense performance anxiety [31•]. ACT promotes mindfulness and acceptance of anxiety

and emotional distress in the face of performance and promotes flexibility and behavioral changes in accordance with one's values. The results from the case study supported the utilization of ACT for performance anxiety. Mahoney et al. also tested the role of acceptance and commitment coaching for performance anxiety in a small sample of musical theater students [32••]. After 6 weeks of coaching, and after a 3-month follow-up, reduction in performance anxiety was observed [32••].

Montello discusses the importance of addressing the “mind–body split,” which numerous individuals may experience before they start learning about their nervous system regulation [10]. When a singer is “in their head” and is not aware of their body and their environment, they may over intellectualize the situation and feel separated from their body. Another common problem identified by Montello refers to *polarized perfectionism*, which initiates a heightened stress response if the singer is not delivering a “perfect” performance [10]. This process is entangled with the cognitive distortion that if one is not perfect their performance is absolutely unacceptable. The ability to find a middle ground has been lost in polarized perfectionism. A fundamental factor to pay attention to is that sometimes performers lose their connection with their original reason for singing. They forget about the joy they felt when they first discovered their ability to use their voices, and their singing activities became entirely focused on “performing” rather than connecting to *why* this is such a fulfilling activity for them. Dempsey and Comeau suggest a negative relationship between music performance anxiety and self-efficacy [33]. This points to the importance of working on self-efficacy for singers and performers.

For these listed reasons, the *Montello Method for Performance Wellness* focuses on addressing a singer's reconnection to their body, rediscovering why they love music and singing, cognitive restructuring of maladaptive thoughts, and reconnecting with what Montello called “the music child,” a musical version of the inner child. Breathing techniques and creative arts therapy techniques are also utilized. Rediscovering the creative flow without the purposes of being perfect is very important for the singer's emotional healing [10].

### Additional Factors

While it is impossible to control every aspect of the performance, it is possible to prepare for the critical aspects which can directly impact a successful performance. Without adequate sleep, it is impossible for a performer to make the best decision to balance the stress of a performance, or to balance the psychological factors of an impending performance. There is also an increased risk for a voice disorder when sleep is inadequate, or when workplace stress is elevated [34].

There are numerous additional factors here that can be mentioned as affecting emotion regulation in performance. Expectations and sensitivity to noise can be factors that can affect numerous individuals, particularly those who have trauma history and/or have neurodivergence [15, 35]. Performance involves a need to meet expectations, and many performers feel the need to meet all expectations, which can indeed generate anxiety. But what are the expectations? What is adequate? There are internal expectations and external expectations, and these may be influenced by noise surrounding the performance. Noise has many facets and may influence a voice user [36]. Performance may be adversely or positively affected by any or *all* types of noise. While one performer may be very sensitive to one aspect of noise, another performer may not find that noise, or distraction, an issue for successful performance.

Are some performers at greater risk for performance stress, or are they “stress-sensitive”? Esteemed laryngologist and voice therapist Brodnitz felt that body type (ectomorph, endomorph, mesomorph) had an influence on overall function and stated “Each of these types has its own kind of voice, and individuals in each type present a specific psychological reaction to their own voices and to disorders” [37]. Brodnitz summarized that ectomorph body types were more likely to note and be concerned about dysfunction and present for therapy or medical assessment. While there is little follow-up on Brodnitz' belief, it is known that respiratory function and breath management does vary between these three body types. “One of the goals of vocal therapy is to appeal first to the predominant type of perception of the patient, but then to strengthen with other one. This is particularly important in teaching highly specialized forms of vocal use of acoustic and motokinesthetic skills, as in singing. Sometimes a great artist anticipates insights that science much later analyzes” (pg. 26) [37].

Coping strategies used by the performer need to be flexible to the specific performance setting and typically change across the lifespan. Much of this is due to the changing stressors and physical conditioning response to stress but also includes the physiological status of the body and the voice. This points to the continuous need for performers to maintain physical and psychological equilibrium as their career and life evolve.

### Conclusion

Understanding what internally and externally can affect a singer in performance is crucial. When it comes to psychological factors, understanding stress, the nervous system, circumstances of the performance, and the singer's



history can help the performer prepare more effectively. It is essential for singers and their care teams to compassionately examine all factors that can affect a performer and learn about the techniques (e.g., visualization, mindfulness, cognitive restructuring) that can help them cope with difficulties that may arise. Of note, openly discussing the universality of these factors can also help performers know they are not alone.

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**Availability of Data and Materials** Not applicable.

## Declarations

**Conflict of Interest** Elisa Monti and Linda M. Carroll declare no conflict of interest.

**Human and Animal Rights and Informed Consent** This article does not contain any studies with human or animal subjects performed by any of the authors.

**Ethical Approval** Not applicable.

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