

Bellarmino University

ScholarWorks@Bellarmino

Undergraduate Theses

Undergraduate Works

4-27-2018

Performance Anxiety and the Benefits of Proper Breathing for Singing

Kate Zecher

kzecher01@bellarmine.edu

Follow this and additional works at: https://scholarworks.bellarmino.edu/ugrad_theses



Part of the Behavioral Disciplines and Activities Commons, Behavior and Behavior Mechanisms Commons, Experimental Analysis of Behavior Commons, Movement and Mind-Body Therapies Commons, Music Pedagogy Commons, Music Performance Commons, Music Therapy Commons, Nervous System Commons, and the Respiratory System Commons

Recommended Citation

Zecher, Kate, "Performance Anxiety and the Benefits of Proper Breathing for Singing" (2018).

Undergraduate Theses. 31.

https://scholarworks.bellarmino.edu/ugrad_theses/31

This Honors Thesis is brought to you for free and open access by the Undergraduate Works at ScholarWorks@Bellarmino. It has been accepted for inclusion in Undergraduate Theses by an authorized administrator of ScholarWorks@Bellarmino. For more information, please contact jstemmer@bellarmine.edu, kpeers@bellarmine.edu.

Performance Anxiety and the Benefits of Proper Breathing for Singing

The intent of this thesis is to help those with Music Performance Anxiety, or anxiety in general, better understand their anxiety and its causes. They can then use this knowledge to reduce or control their symptoms in order to improve their performance, whether on a stage or in a classroom. One of the main symptoms of Music Performance Anxiety is constriction of the chest. It is one of the most debilitating symptoms to singers as it causes shortness of breath. Therefore, focusing on anxiety in relation to breathing will most benefit those with Music Performance Anxiety. In addition, learning about the causes and effects of Music Performance Anxiety may help performers with their stage fright whether it be just nervous jitters or debilitating anxiety.

In order to fully understand Music Performance Anxiety, one must first understand the causes and effects of other types of anxiety, specifically Generalized Anxiety Disorder and Social Anxiety Disorder, from which Music Performance Anxiety stems. From a singer's perspective, it is useful to understand the functions of the body in relation to breath. This helps one understand how anxiety causes constriction in the chest resulting in shortness of breath. This knowledge of anxiety and how the breathing apparatus functions will be applied in a performance setting. It is the belief and hope that knowing how the anxiety cripples the body and learning actions to prevent or perhaps suppress the symptoms of the anxiety will aid in the singer's performance.

Terms used:

MPA - Music Performance Anxiety

GAD - Generalized Anxiety Disorder

SAD - Social Anxiety Disorder

Comorbidity - when two or more anxieties/phobias are present in a person, the two+ disorders are deemed “comorbid” with one another

CBT - Cognitive Behavioral Therapy

Definition

Music Performance Anxiety is defined as “the experience of persisting, distressful apprehension and/or actual impairment of performance skills in a public context, to a degree unwarranted given the individual’s musical aptitude, training, and level of preparation.”¹

Why Is This Topic Important?

Music Performance Anxiety (MPA) is an ongoing issue for around 69% of musicians.² To assist a singer, it is important to determine the roots of the anxiety and treat it accordingly. According to the study done by Khalsa and Associates, some musicians’ performance anxiety is so severe that they choose to end their musical careers instead of dealing with their anxiety.

Scope and Limitations

In this thesis, three different types of anxiety will be discussed and analyzed as to how things relate to MPA. Following this discussion will be an analysis of the anatomy and function of the torso as they relate to and their effect on breathing. Chest constriction and shortness of breath will then be discussed in relation to torso anatomy and function. Without an understanding of torso anatomy and function, one cannot speculate how anxiety causes reactions in the body. A case study will be performed to examine how the knowledge of these brain and bodily functions affects someone in a performance setting.

This is not a manual to overcome performance anxiety, but an analysis and observation of one performer’s experience and response to the anxious performance situation after being

¹ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 48.

² Sat Bir S. Khalsa et al. “Yoga Ameliorates Performance Anxiety and Mood Disturbance in Young Professional Musicians,” *Springer Science+Business Media, LLC*, published August 6, 2009, accessed October 22, 2017.

exposed to the knowledge and reasoning behind MPA and its symptoms and treatments, proper functioning of the breathing apparatus, and practice of one of the aforementioned treatments.

Methodology

My analysis of the relationship between MPA and the breath begins by defining and analyzing certain anxiety disorders, such as Generalized Anxiety Disorder, Social Anxiety Disorder, and Performance Anxiety. These three types of anxiety will be compared and contrasted to MPA. Afterwards, the anatomy of the breathing apparatus is examined and related to the symptoms of anxiety. Shortness of breath and the feeling of chest constriction are the most significant symptoms in this study. Knowledge of these symptoms is then applied in a performance setting in order to examine whether the knowledge of the functions of the breathing apparatus and its relation to anxiety have any effect on the performance of the student.

Expected Outcomes

The goal of this thesis is to educate those with performance anxiety how and why the anxiety occurs. More specifically, this thesis will focus on those whose performance anxiety exhibits as shortness of breath and chest constriction during performance situations. The examination of the breathing apparatus will, combined with the knowledge of the performance anxiety, lead to better performance outcomes.

Anxiety: An Overview

Many people have felt the effects of anxiety in their lives, whether it is due to a job interview, relationship trouble, or an audition for a performance. Anxiety, however, can be much more serious and persistent than just the occasional jitters. There are many people in the world who suffer from debilitating anxiety disorders, including Music Performance Anxiety. In this section, the different types of anxiety will be analyzed by their symptoms, characteristics, and treatments, and then compared and contrasted to MPA.

Anxiety is a widely-known response to stressful situations, whatever its cause. However, many people do not know exactly what anxiety is (despite the countless definitions on the internet) or how anxiety affects a person. Anxiety varies from mild to debilitating, depending on the person, so defining anxiety can be challenging. Dr. Dianna Kenny, in her book called *The Psychology of Music Performance Anxiety*, states that anxiety has no singular definition due to all the different types of anxiety and all the different studies made about anxiety over the years. Nonetheless, a definition will be attempted here.

The term “anxious” comes from the terms “pressing tight,” “strangling,” and “constriction.” Strangling associates anxiety to the throat and the source of “vocal function.” In the past, the term, “anxiety,” originally denoted disquiet or sadness. “Sadness is associated with poor posture, consequent poor breathing habits, and hence impeded performance.”³ Using this definition, anxiety greatly affects performance in negative ways. For example, “stage fright” is a common symptom of performance anxiety which may lead to the performer freezing up on stage

³ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 18.

or forgetting parts of their song. From these descriptions, a general definition of anxiety may be formed. Anxiety is “the body’s reaction to stressful, dangerous, or unfamiliar situations.”⁴

According to Dr. Kenny, anxiety is a learned form of fear. Fear is a natural drive in mammals used for protection.⁵ While it may be a natural drive, experience and exposure to fear allows one to develop the fear response and eventually a defense to that fear. Anxiety itself, on the other hand, is a learned response, usually activated by signals of injury or pain which correspond with fear.⁶ Kenny explains that in order to be anxious about some future event or experience, one must have had a negative reaction to a similar experience in the past on which to base the “future-oriented fear.” The difference between fear and anxiety is that fear is reserved for an event that denotes immediate danger, while anxiety denotes the feeling of “being troubled in mind about some uncertain event.”⁷

Individual Differences in the Experience of Anxiety

Before we learn about anxiety itself, it is important to understand why some people who are exposed to “aversive conditioning experiences” develop “abnormal fear reactions” (anxiety) while others do not. Aversive conditioning experiences consist of any experiences which provide negative responses in a person. It is theorized that anxiety has to do with genetic traits which contribute to fear conditioning, such as timidity or shyness. Another theory was that some anxiety or fear of an event stems from a similar experience that went wrong in the past. In fact, “previous learning or conditioning experiences are now understood to play a central role in the

⁴ Tony Attwood, Ph. D, "What Is Anxiety?" N.p., n.d., accessed November 2, 2016, www.anxiety.org/what-is-anxiety.

⁵ "What Is Anxiety?" *Anxiety & Behavioral Health Clinic*, Anxiety and Behavioral Health Clinic, n.d., accessed November 2, 2016, anxietyclinic.fsu.edu/aboutanxiety/main.php.

⁶ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 22.

⁷ Dianna Theadora Kenny, 27.

onset of anxiety disorders.”⁸ This means that any bad experience can contribute to the formation of an anxiety disorder. This “conditioning” happens mainly during childhood or adolescence. Dianna Kenny states, “the degree to which a child is vulnerable or resilient has an impact on their response to traumatic or stressful life events and these responses determine the short and long-term consequences of the traumatic experience.”⁹ What draws together the two aspects of the formation of anxiety - the disposition of the child and the makeup of his or her genetic traits - gives the child the resilience or lack thereof to either form an anxiety disorder or not, depending on the child’s reactions to traumatic situations.

Genetics also contributes to one’s views of oneself. Anxiety is found to correspond with self-concept, which is one’s view of oneself; self-esteem, one’s approval of oneself; and self-efficacy, one’s belief in one’s capacity to achieve outcomes. These are central themes in personality theory and social psychology.¹⁰ For those with anxiety, these three personal beliefs are generally low, therefore makes the person unable to see themselves in a positive light.

Manifestations of Anxiety

There are various psychological and physiological symptoms of anxiety which make anxiety a very difficult condition with which to live. Some psychological symptoms of anxiety are trait anxiety - “the propensity of individuals to respond anxiously across a broad range of situations and experiences,” neuroticism - very similar to trait anxiety, negative affectivity - “temperamental sensitivity to negative stimuli,” introversion, and behavioral inhibition - “the propensity to avoid unfamiliar events and people.”¹¹ These psychological symptoms can be applied to almost all of the anxiety disorders in one form or another. For example, trait anxiety is

⁸ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 120.

⁹ Dianna Theadora Kenny, 121.

¹⁰ Dianna Theadora Kenny, 72.

¹¹ Dianna Theadora Kenny, 68.

a very broad behavioral trait that can be applied to almost any anxiety disorder. Additionally, “anxiety prior to and during a musical performance was positively associated with higher levels of negative affectivity.”¹² Negative affectivity also can be associated with all types of anxiety disorders.

Some physiological symptoms of anxiety include difficulty concentrating, loss of appetite, increased heart rate, shortness of breath, dizziness, “butterflies” in the stomach, shaking knees, shaking hands, and sweaty palms.¹³ While not every person experiences all of these symptoms, it is not uncommon for someone to experience many of these symptoms simultaneously. These physiological symptoms are what makes anxiety so debilitating to some people.

The experience of anxiety is difficult to explain as everyone experiences anxiety in different ways. However, there is generally a process in which anxiety is experienced:

1. Physiological arousal, such as elevations in heart rate, respiration, perspiration, etc.;
2. Subjective feelings of discomfort;
3. Disturbed cognitions, such as worry, dread, or rumination; and
4. Overt behavior, such as shaking, trembling, poor posture, and muscle tension.¹⁴

This process does not have to be experienced in any particular order nor does one need to experience all of these symptoms in order to be classified as having an “anxiety attack.” These physiological symptoms and experiences are unique to each person, which is why the list of symptoms is so long. There are too many different experiences to nail down a complete list.

¹² Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 69.

¹³ Carole B. Miller, "A Discussion on Performance Anxiety," *Mostlywind*, n.p., 2011, accessed October 19, 2016. www.mostlywind.co.uk/performance_anxiety.html.

¹⁴ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 92.

The Assessment of Anxiety

In order to treat anxiety, one must first assess the severity and type of anxiety. There are three proven assessments to measure anxiety. These are:

1. Psychophysiological measures, such as measuring heart rate, blood pressure, respiration, and muscle tension;
2. Self-report, which comes in the form of questionnaires, checklists, or interviews. Self-report assessments can be found very easily online and sometimes in various forms of print;
3. Behavioral observations, such as observing facial expressions, heavy breathing, tremors, perspiration, postural orientation, nail biting, eye blinks, packing, hand wringing, and various other “nervous habits.”¹⁵

Treatments for Anxiety

Once anxiety is assessed, it can then be treated. Some treatments for anxiety include various therapies, prescribed medicines, and yoga, among other things. The most widely used of these treatments are therapies. The most effective therapies found for anxiety disorders are cognitive, behavioral, and cognitive behavioral.

Therapeutic Treatments for Anxiety. “Cognitive therapy is concerned with changing faulty thinking patterns that give rise to maladaptive behaviors...”¹⁶ In order to change the way someone thinks, one must replace the faulty thinking with more rational or useful thinking. In other words, one must become aware of negative thoughts and replace them with more positive thoughts.¹⁷

Behavioral therapy assumes that “anxiety is a learned or conditioned response to a particular situation and the therapy used attempts to break the link between the situation and the

¹⁵ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 94.

¹⁶ Dianna Theadora Kenny, 182.

¹⁷ Carole B. Miller, "A Discussion on Performance Anxiety," *Mostlywind*, n.p., 2011, accessed October 19, 2016. www.mostlywind.co.uk/performance_anxiety.html.

response.”¹⁸ Behavioral therapy uses classical conditioning to do this.¹⁹ Classical conditioning is a learning procedure in which a biologically potent stimulus (such as food) is paired with a seemingly neutral stimulus (such as a bell). Once a person is conditioned to those stimuli, for example, when one hears a bell, he or she may expect food or get hungry. In the case of anxiety, behavioral therapy uses the technique of exposure to the feared stimulus. First, the patient is taught to relax using deep muscle relaxation. Then, the feared thing is gradually introduced until the patient is able to tolerate the feared stimulus without the anxiety response being triggered. This specific technique is called systematic desensitization.²⁰

Cognitive behavioral therapy (CBT) is the “favorite” of the anxiety therapies. CBT stands out from the others in a multitude of ways. First, CBT uses out-of-session activities and “homework” in order to assist symptom reduction in patients by allowing him or her to practice exercises outside of the therapy sessions. Second, the therapist explicitly directs the session’s activities rather than letting the conversation wander. This allows the therapist to direct conversation to specific topics as well as introduce new tasks to perform. Third, the therapist teaches the patient skills to cope with symptoms of anxiety, which “follows that therapy will have a stronger behavioral task orientation...”²¹ Fourth, there is an emphasis placed on patients’ future experiences. CBT therapists rarely focus on past experiences; rather, they focus on a better future. Fifth, therapists provide information to their patients about their disorder(s), symptoms, and treatment. This is especially important as this type of therapy is psycho-educational so it is helpful to the patient to understand what and why the therapist is doing what he or she is doing. Sixth, and last, there is an intrapersonal/cognitive focus of the therapy in which therapists

¹⁸ Carole B. Miller, "A Discussion on Performance Anxiety," *Mostlywind*, n.p., 2011, accessed October 19, 2016. www.mostlywind.co.uk/performance_anxiety.html.

¹⁹ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 179.

²⁰ Dianna Theadora Kenny, 180.

²¹ Dianna Theadora Kenny, 178.

evaluate, challenge, and assist patients to modify false or distorted cognitions associated with their symptomatic behavior.”²² As CBT is the most effective and most researched of the three therapies mentioned here. It is important to talk about its components.

There are four components of CBT intervention:

1. Exposure to thoughts, objects, situations, and bodily sensations that are not dangerous but are feared, avoided, or endured with great distress;
2. Training in basic stress-management techniques;
3. Application and training in cognitive therapy techniques;
4. Training in specific skills that constitute areas of specific individual concern or weakness.²³

These intervention techniques are then implemented in therapy sessions and out-of-session activities, as mentioned earlier.

Other Treatments for Anxiety. Other treatments for anxiety include medication, yoga, and various preventative behaviors. While these treatments work, studies show that therapy produces more long-term results. Medication is a “quick fix” of sorts. Yoga reduces the effects of some forms of anxiety, but for extremely severe cases, yoga may not be the best way to treat anxiety. While yoga may be able to reduce some of the symptoms of anxiety, it cannot reduce all of them, which could be a problem for those with severe, debilitating anxiety. The use of yoga will be discussed more in depth later.

There exist many short-term treatments for anxiety disorders. Studies show that alcohol, nicotine, caffeine, cannabis, and other substances are used to control anxiety. However, these substances usually lead to dependence, and there is known comorbidity between anxiety and alcoholism.²⁴ Nicotine and caffeine are very difficult substances to stop using. Caffeine is the

²² Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 178.

²³ Dianna Theadora Kenny, 191.

²⁴ Dianna Theadora Kenny, 223.

most widely used drug in the world,²⁵ although most people don't think of it as a drug. Additionally, low doses of cannabis help with relaxation. Cannabidiol (a non-psychoactive constituent of cannabis) has been tested to reduce anxiety in those with Social Anxiety Disorder (SAD),²⁶ as well as those with general anxiety disorders.²⁷ Cannabis is illegal in most of the United States, and otherwise is only available to those with medical conditions. If one lives in a state where cannabis is legal, and one acquires a prescription for it, that is a treatment option. For those who do not have a prescription or live in states where it is illegal, cannabis is not a logical treatment option.

Clinical Diagnoses of Anxiety

Generalized Anxiety Disorder. Generalized anxiety disorder (GAD) is an anxiety disorder which relates to and helps explain and diagnose MPA. GAD is characterized by the presence, for a minimum of six consecutive months, of chronic feelings of excessive worry and anxiety without a specific identifiable cause.²⁸ Worry is defined as “a chain of thoughts and images, negatively affect-laden and relatively uncontrollable... an attempt to engage in mental problem solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes: consequently worry relates closely to the fear process.”²⁹ Worry also tends to be future oriented and focused primarily on possible threats. Basically, worry is a mental strategy that is used to avoid future danger.³⁰

While the cause of generalized anxiety disorder is unclear, there are various factors that may explain how GAD develops in individuals. One potential cause of GAD is found in one's

²⁵ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 225.

²⁶ Dianna Theadora Kenny, 227.

²⁷ Dianna Theadora Kenny, 228.

²⁸ Dianna Theadora Kenny, 36.

²⁹ Dianna Theadora Kenny, 31.

³⁰ "What Is Anxiety?" *Anxiety & Behavioral Health Clinic*, Anxiety and Behavioral Health Clinic, n.d., accessed November 2, 2016, anxietyclinic.fsu.edu/aboutanxiety/main.php.

genetic makeup - “some people have a tendency to have an anxious personality, which can run in families.”³¹ Another potential contributor to GAD is childhood trauma, which may develop into anxiety as one gets older. Any sort of childhood trauma, including the death of a family member or perhaps domestic abuse, may produce anxiety in a person. Additionally, a “major stress” in life such as a family or community crisis can also activate the condition. Once the crisis is over, daily stresses can keep the symptoms of the anxiety active.³²

According to the Anxiety Clinic at Florida State University, those with GAD can never seem to shake their concerns, even when they realize that their anxiety is more intense than the situation warrants. People with GAD often have trouble falling asleep and/or staying asleep. Other physiological symptoms include trembling, twitching, muscle tension, headaches, irritability, and sweating or hot flashes. Lightheadedness as well as nausea and the feeling of indigestion may present as symptoms. Those with GAD may feel tired all the time or occasionally have trouble concentrating.

Some treatments for GAD are cognitive behavioral therapy, which has been proven very effective in combating this anxiety disorder,³³ as well as counseling, anxiety management courses, self-help, such as books or CDs, and various medications, which can dull the symptoms but never really get rid of the anxiety.³⁴

Social Anxiety Disorder. Social anxiety disorder, or social phobia, occurs mainly during social interactions. It is the “occurrence of intense anxiety when performing a task that is

³¹ Tim Kenny, "Generalized Anxiety Disorder," *Patient*, n.p., 2016, accessed November 2, 2016, patient.info/health/generalized-anxiety-disorder-leaflet.

³² *Ibid.*

³³ "What Is Anxiety?" *Anxiety & Behavioral Health Clinic*, Anxiety and Behavioral Health Clinic, n.d., accessed November 2, 2016, anxietyclinic.fsu.edu/aboutanxiety/main.php.

³⁴ Tim Kenny, "Generalized Anxiety Disorder," *Patient*, n.p., 2016, accessed November 2, 2016, patient.info/health/generalized-anxiety-disorder-leaflet.

scrutinized in some way by others.”³⁵ This includes anything from having a conversation with a peer to speaking in front of thousands of people at a conference. It occurs in any situation in which humiliation or embarrassment may occur.³⁶

One key component of SAD is fear of negative evaluation. It develops in the formal operations section of the brain, which develops during adolescence through the mid-20s.³⁷ Those with strong formal operations sections have certain character traits such as:

1. Adolescent egocentrism, which is when one focuses on oneself and excludes others. There is the feeling that “nobody can understand what I’m going through,” heightened sensitivity to criticism, self-criticism, self-doubt;
2. Invincibility fable, which is the feeling that “nothing bad can happen to me!” aka, belief that one is not subject to the consequences of risky behaviors;
3. Personal fable, which is the feeling of “I am the best and will do the best things!” This is shown in adolescents who think their parents are inferior; and
4. Imaginary audience, which is the belief that one is always being talked about by others, leading to obsession over appearance.³⁸

While these character traits don’t necessarily seem congruent with what is known about anxiety, these are the underlying behaviors contributing heavily to self-image, which plays a significant role in SAD. When a person is constantly battling with these conflicting inner thought processes, it is difficult to maintain decent social interactions.

Other symptoms and traits apparent in those with SAD are not as glamorous. Some physiological symptoms of SAD are blushing, sweating, trembling, nausea, rapid heart rate, and shortness of breath. These symptoms are usually experienced before or during an anxious situation. After the situation is over, those with SAD may brood over the interaction, picking

³⁵ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 36.

³⁶ Tony Attwood, PH. D., "Social Anxiety Disorder," n.p., n.d., accessed November 2, 2016, www.anxiety.org/social-anxiety-disorder.

³⁷ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 70.

³⁸ Dianna Theadora Kenny, 71.

apart the details of the event.³⁹ Those with social anxiety disorder experience intense anxiety in social situations: they have difficulty talking to others, they feel self-conscious in front of people, and they fear that they are being judged by others. These people also worry excessively for days or even weeks prior to a public event, going so far as to avoid public places altogether. It is extremely difficult for those with SAD to make and maintain friendships.⁴⁰ It is extremely difficult to live with SAD, even without all the physiological symptoms which may accompany any of those feelings of anxiety or avoidance of public places and situations.

There are two prominent treatment options for SAD: cognitive behavioral therapy and medication. The medications most often prescribed for SAD are a form of antidepressants.⁴¹ As mentioned before, medication can reduce symptoms of anxiety, but will not make the anxiety permanently disappear.

Performance Anxiety. Before I begin talking about music performance anxiety, I will first discuss performance anxiety in general. Performance Anxiety is “a disorder that affects individuals in a range of endeavors, from test taking, mathematics performance, public speaking, and the performing arts in dance, acting, and music.”⁴² It “can be experienced in the present (stage fright), as apprehension (fear of what could happen), and arousal (anticipation).”⁴³ Stage fright is the term most widely used for the experience as a whole, when in fact, it only really applies to the performance itself. The apprehension stage can occur days, weeks, or months before a performance. Arousal happens just before the performance.

³⁹“What Is Anxiety?” *Anxiety & Behavioral Health Clinic*, Anxiety and Behavioral Health Clinic, n.d., accessed November 2, 2016, anxietyclinic.fsu.edu/aboutanxiety/main.php.

⁴⁰ Tony Attwood, PH. D., "Social Anxiety Disorder," n.p., n.d., accessed November 2, 2016, www.anxiety.org/social-anxiety-disorder.

⁴¹“What Is Anxiety?” *Anxiety & Behavioral Health Clinic*, Anxiety and Behavioral Health Clinic, n.d., accessed November 2, 2016, anxietyclinic.fsu.edu/aboutanxiety/main.php.

⁴² Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 47.

⁴³ Carole B. Miller, "A Discussion on Performance Anxiety," *Mostlywind*, n.p., 2011, accessed October 19, 2016, www.mostlywind.co.uk/performance_anxiety.html.

Performance Anxiety consists of four components: affect or feeling (feelings of anxiety, tension, apprehension, dread, or panic), cognitions (loss of concentration, memory failure, misreading of the score), behaviors (failures of technique, loss of posture, tremors and trembling), and physiological reactions (disturbances in breathing, salivation, heart rate, gastrointestinal functions, etc).⁴⁴ One thing to note is that while performance anxiety and social phobia have very similar symptoms and situations, Performance Anxiety is not a social phobia unless the anxiety leads to clinically significant impairment or marked distress. An example of performance anxiety in relation to social phobia is found in audition anxiety. Audition anxiety is seen as “a situation of extreme overarousal or overstimulation coupled with a response repertoire or capacity that is insufficient to reduce the level of arousal.”⁴⁵ This means that audition anxiety occurs during an audition, which usually contains a performed piece of repertoire, due to the added anxiety of being critiqued for the performance. Audition anxiety is the only type of Performance Anxiety in which people report that their anxiety is unmanageable. In other cases, Performance Anxiety is fairly manageable.

Music Performance Anxiety. Music Performance Anxiety, on the other hand, is slightly different than performance anxiety in general. Music Performance Anxiety is a recently coined term. In the past and occasionally in the present, the term “music performance anxiety” is used interchangeably with “stage fright” or “performance anxiety.”⁴⁶ There are studies conducted on MPA which focus specifically on anxiety in music performance situations. In the beginning, MPA was classified as “a disorder that affects individuals in a range of endeavors, from test taking, mathematics performance, public speaking, and the performing arts in dance, acting, and

⁴⁴ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 49.

⁴⁵ Dianna Theadora Kenny, 59.

⁴⁶ Dianna Theadora Kenny, 48.

music.”⁴⁷ After many studies and people narrowing the definition, MPA is now described as “the experience of persisting, distressful apprehension and/or actual impairment of performance skills in a public context, to a degree unwarranted given the individual’s musical aptitude, training, and level of preparation.”⁴⁸ This definition narrows those affected to musicians only.

Most music performance anxiety stems from different types of anxiety. It also comes from various other things such as genetics, level of task mastery, and the stakes associated with performing. Some people, no matter how hard they work to dispel their MPA, always feel anxious before a performance situation. It seems that no amount of therapy or medicine or preparation can help these people; they seem to be “hard-wired” for the experience of anxiety. These people may be able to lessen their anxiety but not fully rid themselves of it.

The next thing that affects MPA is level of task mastery or “practice makes perfect.” Another aspect of this is how many times one performs in public. In theory, the more one performs, the better he or she will be at performing. The last aspect of MPA is the stakes associated with performing. If the performance has a lot of stakes attached to it, such as an audition for a job or a recital that determines one’s eligibility to graduate college, it is understandable to be more nervous than performances in a group or a performance for fun.⁴⁹

One cause as to the development of MPA relates to the discussion earlier about how anxiety stems from childhood or adolescence. Dianna Kenny relays that “the universality of stage fright must have multi-determined origins in normal developmental processes as well as in the reactivation of unconscious childhood conflicts based around pathological developmental experiences such as early trauma associated with guilt, shame, exhibitionism, fears about loss of

⁴⁷ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 47.

⁴⁸ Dianna Theadora Kenny, 48.

⁴⁹ Sat Bir S. Khalsa, et al., “Yoga Ameliorates Performance Anxiety and Mood Disturbance in Young Professional Musicians,” *Springer Science+Business Media, LLC*, published August 6, 2009, accessed October 22, 2017.

control, and specific fantasies that arise in the unusual internal world of the gifted child.”⁵⁰ The “gifted child” mentioned above relates to the theory that musicians are very intelligent people, and were likely to have been categorized as “gifted” during childhood.

Another cause of MPA is perfectionism. While some would consider perfectionism in the musical arts to be a good thing, perfectionism in music performance can actually lead to such things as loss of concentration, impaired performance, and feeling dissatisfied with a performance. Success for a perfectionist is all or nothing. Due to this fact, perfectionists “fail” often, which leads to these people acquiring chronic anxiety and depression.⁵¹ Aspects of perfectionism are associated with a range of other characteristics such as higher anxiety, lower confidence, and “failure orientation” to one’s performances.⁵² In fact, musical perfectionists experience more debilitating performance anxiety, somatic anxiety, and less goal satisfaction than others suffering from MPA. Due to this, there is a significant relationship between dimensions of perfectionism - showing high concern over mistakes, high doubt about actions, and low personal standards - and performance anxiety.⁵³

Symptoms of MPA. Like other anxiety disorders, there are physiological and psychological (cognitive or behavioral) symptoms of MPA. Some physiological symptoms include difficulty concentrating, loss of appetite, increased heart rate, and shortness of breath, which may lead to dizziness and/or shaking. As mentioned previously, physiological symptoms of anxiety are the result of the fight or flight response. Psychological symptoms of MPA include the fear of making mistakes, feelings of inadequacy, and a general worrying of what is going to

⁵⁰ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 174.

⁵¹ Dianna Theadora Kenny, 74.

⁵² Dianna Theadora Kenny, 75.

⁵³ Dianna Theadora Kenny, 76.

happen. The behavioral aspect of this is shown by worrying that one will not be able to do things, in this case, the performance.⁵⁴

Before seeking treatment for MPA, it is important to understand from where the anxiety is coming. One psychologist mentioned in an article by Dr. Robert Woody states that there are three categories in which to look for the source of MPA:

1. The task, which means that the musician feels physically incapable to play or sing their music,
2. The situation, in which the anxiety stems from the conditions of a public performance, and
3. The person, in which one's own thinking, or over-thinking, plays an integral role.⁵⁵

In the first case, extra practice is probably the best way to treat the anxiety. In the other two cases, forms of therapy or other treatments may be useful.

Treatments for MPA. Treatments for MPA are also very similar to other anxiety disorders mentioned previously. The three types of therapy mentioned earlier - Cognitive, Behavioral, and Cognitive Behavioral - are all effective treatments for MPA. With regard to MPA, Cognitive therapy is increasingly effective due to the fact that "... shifting attentional focus from the self and the audience to the music will have the joint effect of making more cognitive resources available for the cognitive challenge of performing the work, but also of reducing the number of catastrophic thoughts."⁵⁶ The focus of cognitive therapy for MPA includes the three main foci: the self, the audience, and the music. The musical aspect of this focuses on absorption in the task, which is very important to a musician. Cognitive therapy helps with this focus by clearing the mind of any worries in order to better assist in the absorption in the task. Behavioral

⁵⁴ Carole B. Miller, "A Discussion on Performance Anxiety," *Mostlywind*, n.p., 2011, accessed October 19, 2016, www.mostlywind.co.uk/performance_anxiety.html.

⁵⁵ Robert H. Woody, "When Practice, Practice, Practice Isn't the Answer," *Psychology Today*, n.p., 2012, accessed October 19, 2016, www.psychologytoday.com/blog/live-in-concert/201207/when-practice-practice-practice-isn't-the-answer.

⁵⁶ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 185.

therapy has also proven to be effective. In a study done by Gladys Sweeney and John Horan, “the behavioral technique of cue-controlled relaxation led to improvements in anxiety, music performance anxiety, heart rate, and performance quality...”⁵⁷

Additionally, medication is effective but not recommended for MPA due to negative side effects such as foggy memory, potential vocal cord hemorrhaging from pills, and other side effects found in various medications. Yoga is very effective in reducing MPA symptoms due to the relaxation aspects of the practice as well as the benefits for deep and steady breathing.⁵⁸ An anonymous musician who suffers from MPA recounted this story:

I started doing yoga for my back problems... and at the start I learnt to breathe and then I started incorporating breathing into my playing because breathing helps clear your mind and relaxes you at the same time, relaxes your hands and your whole body really. [Y]oga breathing pre-performance powers the mind to achieve a mental and physical stillness but retain a state of alertness that gives you quiet confidence and stills the doubting voice in your head.⁵⁹

This is a great example of how yoga improves the symptoms of MPA, especially the breathing aspect. Yogic breathing is one of the many proven treatments for anxiety, including MPA, as demonstrated in a study from 2009, which demonstrated how yoga and yoga breathing ameliorated performance anxiety in a group of professional young adult musicians.⁶⁰

Unlike other forms of anxiety, there are a few treatment options unique to performance anxiety. Beta-blocker medication is used fairly often with musicians facing auditions, solo recitals, concerto performances, and difficult orchestral performances.⁶¹ Beta-blockers block the binding of noradrenalin and adrenaline to receptors in the body, thereby blocking the physical

⁵⁷ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 181.

⁵⁸ Dianna Theadora Kenny, 191-192.

⁵⁹ Dianna Theadora Kenny, 278-279.

⁶⁰ Sat Bir S. Khalsa, et al., “Yoga Ameliorates Performance Anxiety and Mood Disturbance in Young Professional Musicians,” *Springer Science+Business Media, LLC*, published August 6, 2009, accessed October 22, 2017.

⁶¹ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 218.

effects of the “fight or flight” response.⁶² Beta-blockers are most effective in those who show more of the physical signs of anxiety. Most beta-blockers come in pill form, however, bananas are a natural beta-blocker (a fact that is not widely known).⁶³ Unfortunately, beta-blockers are a controversial treatment option because learned anxieties can only be extinguished by exposure, and since beta-blockers inhibit exposure, the problem (anxiety) never really goes away.⁶⁴ There are some people who have to use beta-blockers as therapy when other treatments weren’t effective.⁶⁵ Another treatment option for MPA is “exposure based treatments, coupled with ‘brain-based’ technique [which] offer the quickest path to symptom reduction.” Virtual reality, which consists of “using a headset that provides realistic 360-degree visual immersion into a given performance situation”⁶⁶ is an example of an exposure-based treatment.

The Alexander Technique is a treatment specific to musicians. Using this technique, one learns a set of skills that lessens the areas of tension in the body, so that movement becomes easier and less full of effort. It improves natural alignment of head, neck, and spine by teaching one the voluntary and conscious control over posture and movement, and undoing involuntary muscle tension. It is used to eliminate unwanted muscular patterns or habits that interfere with smooth performance.⁶⁷

⁶² Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 219.

⁶³ Carole B. Miller, "A Discussion on Performance Anxiety," *Mostlywind*, n.p., 2011, accessed 19 October 2016, www.mostlywind.co.uk/performance_anxiety.html.

⁶⁴ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 221.

⁶⁵ Patrick Gannon, "Don't Call It Stage Fright! New Ideas About Treating Music Performance Anxiety," *International Musician*, n.p., 2015, accessed October 4, 2016, www.internationalmusician.org/treating-music-performance-anxiety/.

⁶⁶ *Ibid.*

⁶⁷ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 198.

Another treatment option for those with MPA is simply to be prepared and to practice.

According to Kenny, “there is a self-evident link between inadequate practice and music performance anxiety.”⁶⁸ Additionally,

... performance preparation such as visiting the venue and practicing in the performance setting may be helpful to anxious performers. Integrating performance setting cues into performance preparation reduces the demands on attention on the day of the performance.⁶⁹

For some people, preparation and practice are all it takes to reduce anxiety. Mental imagery plays a crucial role in this. According to Ware, mental imagery is the mind’s ability to reimagine and replay pitch, rhythm, tone, word, and emotion.⁷⁰ This mental imagery is not possible without practice and preparation. Another advocate for this practice is Michael Cho, a blogger who wrote an article about MPA, listed four steps to “cure” stage fright:

1. Preparation
1. Practice
2. Learn to “breathe into your balls” (deep breathing)
3. After a presentation, book another right away - the more you do it, the easier it will get (in theory).⁷¹

While a bit crude, it does get the point across in a simple way. While Cho is talking about public speaking in this example and not necessarily a music performance, I believe these four steps can be utilized for music performance as well. His last step, to book another gig right away, is especially intriguing, and possibly the most difficult step for those with MPA. However, repeated exposure to the fear stimulus is a proven way to reduce anxiety about the stimulus, so perhaps Cho is right.

⁶⁸ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 211.

⁶⁹ *Ibid.*

⁷⁰ Clifton Ware, *Basics of Vocal Pedagogy: The Foundations and Process of Singing* (New York: McGraw-Hill, 1998), 17.

⁷¹ Mikael Cho, “What Happens to Our Brains When We Have Stage Fright: The Science of Public Speaking,” *Buffer Social*, n.p., April 30, 2013, accessed October 4, 2016.

Associations between MPA and Other Anxiety Disorders

MPA was not diagnosed until recently because of its similarities to other anxiety disorders. In order to really understand MPA, it is important to see how it relates to the other forms of anxiety mentioned previously. This section will discuss the relationships between MPA and other anxiety disorders.

Most similar to Music Performance Anxiety is Social Phobia. No wonder MPA was diagnosed as Social Phobia before a specific term was developed! MPA has many related signs of anxiety such as:

1. Feeling stronger negative expectancies before the performance,
2. Feeling a stronger negative bias in one's retrospective self-evaluations of performance,
3. Having a stronger expectation that one's performance will be judged negatively by their examiners or audience,
4. Feeling stronger concerns about the consequences of a poor performance,
5. Having a heightened responsiveness to changes in reactions of judges or audience, and
6. Failing to derive comfort from evidence that one has handled the situation skillfully.⁷²

These feelings of apprehension, disappointment, and negative expectation are all present in Social Phobia as well, although not necessarily in a performance context. The performance aspect is, however, a very important contributor to MPA which sets it apart from Social Phobia.

Those with MPA and not Social Phobia:

1. Have higher expectations of themselves,
2. Have greater fear of their own evaluations of their performance (as opposed to fear of scrutiny of others in social anxiety),
3. Have a higher degree of post-event rumination, and
4. Have a continued commitment to the feared performance situation (as opposed to avoidance of or escape from the feared situation in social anxiety).

Another difference between MPA and Social Phobia is that the latter does not demand a cognitive or physical task, unlike those who suffer from MPA.⁷³ Social anxiety refers more to everyday tasks: eating in a restaurant, depositing money in the bank, going to a public restroom,

⁷² Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 61.

⁷³ Dianna Theadora Kenny, 62.

as well as other social situations which do not necessarily affect those with MPA. MPA directly relates to demanding performance situations, whether “demanding” be singing in a community choir or auditioning for the MET opera. However, it is shown that 95% of those who have high MPA also qualify for a diagnosis of Social Anxiety (Social Phobia).⁷⁴

Besides showing relationships between Social Phobia and MPA, there are only a few studies on comorbidity between MPA and other anxiety disorders. Those few studies show comorbidity between MPA and Specific Phobia, GAD, Panic Disorder, and major Depressive Disorder.⁷⁵ This is most likely due to similarity of symptoms and treatment options within these disorders.

In conclusion, about 29% of the adult population report an anxiety disorder, 12.5% of that being a specific phobia or a social phobia (SAD), over their lifetime.⁷⁶ While only about 2% of the US population suffers from debilitating performance anxiety, about one-third of those have other comorbid conditions including another anxiety disorder, usually GAD or SAD.⁷⁷ These people may be in the minority, but the conditions they face with these anxiety disorders are no joke. It is important for those with anxiety disorders to find treatment in order to survive lives filled with stress.

Breathing: A Physiological Process

The next section focuses on the anatomy of the breathing apparatus in order to better understand how the breath functions in the body and how, when an anxious situation arises, the breath becomes shallow and more constricted in the airways.

⁷⁴ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 65.

⁷⁵ Dianna Theadora Kenny, 68.

⁷⁶ Dianna Theadora Kenny, 83.

⁷⁷ Dianna Theadora Kenny, 85.

“Breathing is a natural process which begins with birth and ends with death.”⁷⁸ It is an unconscious effort in the body. Nobody needs to be taught how to breathe because it comes naturally to all. Breathing for singing, on the other hand, contains many different components which may not be completely effortless, at least to the novice singer. This is due to the “suspension” stage of the breathing process, which is not used in the process of natural breathing.⁷⁹ It is useful to those who have trouble breathing effectively for singing, or those whose breathing is affected by anxiety or “stage fright,” to have an understanding of the breathing mechanism and how it functions in order to breathe more effectively.

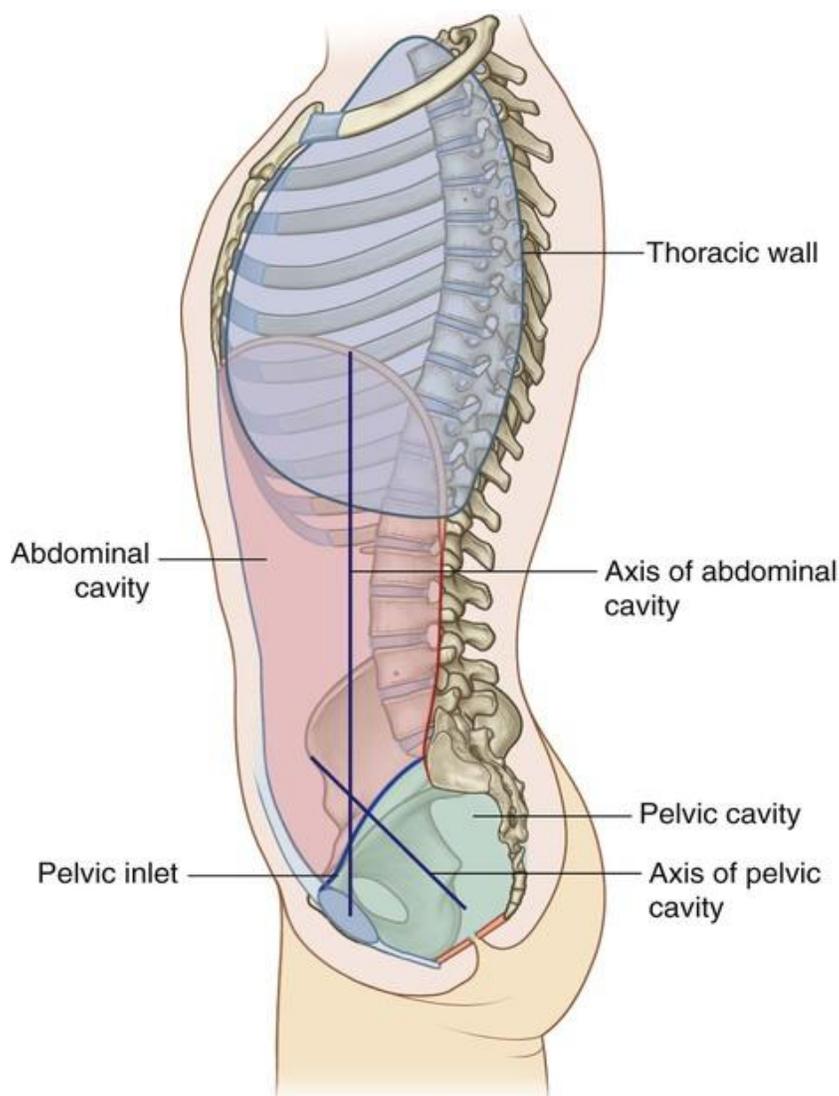
The parts of the body used during the breathing and phonation (or singing) process are the neck and torso. Within these lie many different organs, muscles, bones, and cartilage which all work together to allow one to breathe properly and effectively. Beginning with the torso and ending in the throat, the function of these body parts will allow one to better visualize and understand the breathing and phonation process. I will begin by discussing the torso and its parts which relate to breathing.

The thoracic cavity resides in the upper third of one’s torso. It contains the lungs, part of the spine, and the heart. The expansion of the lungs fills the thoracic cavity with each inhalation. Below the thoracic cavity and lungs lies the diaphragm. As air fills the lungs, the diaphragm moves down, and as the lungs deflate, the diaphragm moves back up. To clarify, the diaphragm is actually a muscle which extends across the torso, connecting to the rib cage with tendons which extend upward into the ribs and assist in the breathing process. The diaphragm is what separates the thoracic cavity from the abdominal cavity, which resides in the middle third of the torso. The abdominal cavity houses the intestines, and therefore has minimal impact on the

⁷⁸ James C. McKinney, *The Diagnosis & Correction of Vocal Faults: A Manual for Teachers of Singing & for Choir Directors* (Long Grove, IL: Waveland, 2005), 46.

⁷⁹ James C. McKinney, 50.

breathing apparatus. The pelvic cavity, right below the abdominal cavity, provides support for the breath, as some of the muscles there connect to the diaphragm. These muscles are only engaged, however, when the spine lengthens during exhalation. These muscles are important because they allow a singer to breathe more freely as well as maintain good balance on the seat.

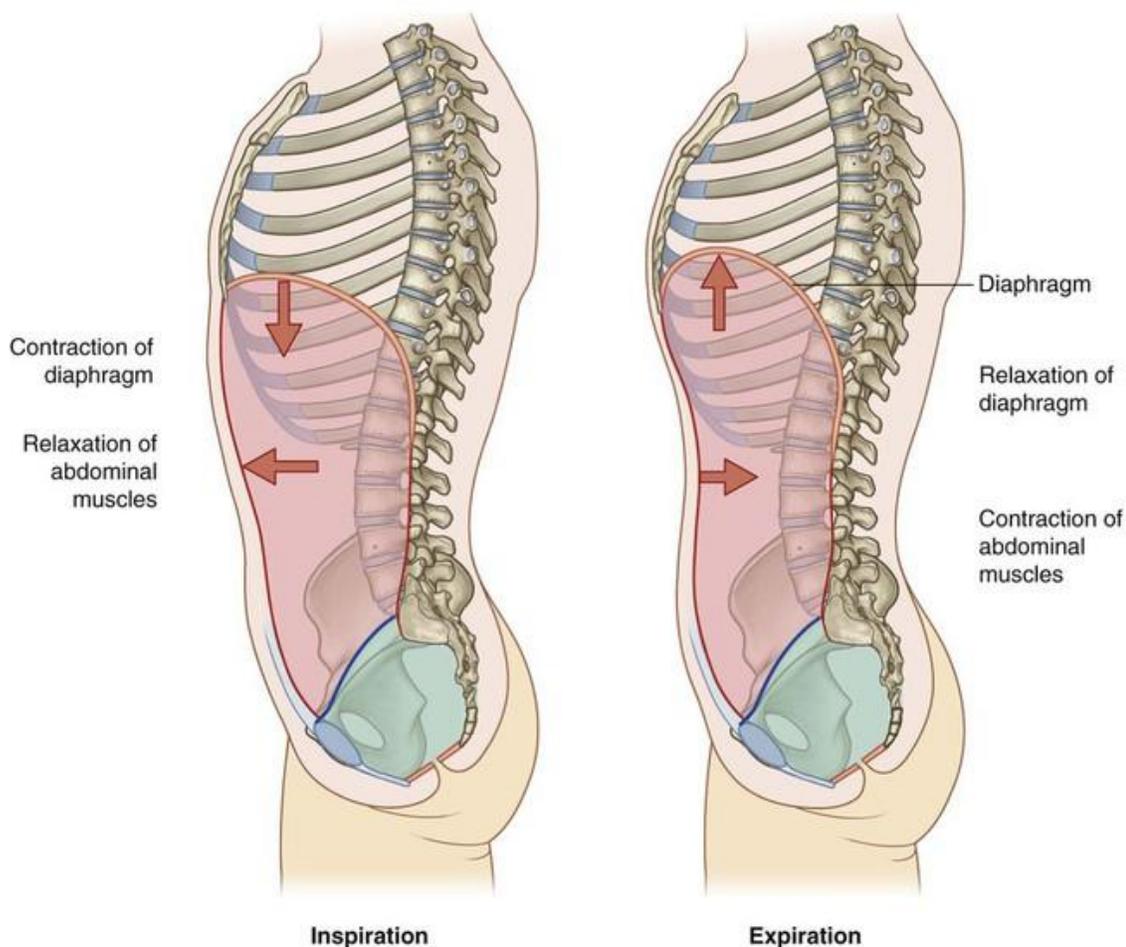


80

While one breathes, all of these areas react. The thoracic cavity expands on inhalation, pressing the diaphragm down, which in turn pushes the abdominal and pelvic cavities down and

⁸⁰ Administration, *Orientation of abdominal and pelvic cavities*, January 2016, Basicmedical Key, accessed September 16, 2017, basicmedicalkey.com/abdomen.

outward. During exhalation, the thoracic cavity returns to its previous position - the diaphragm moves up and the two lower cavities return up and into their relaxed positions in the body. It is important not to have tension in these cavities, especially the abdominal cavity. Any tension in the abdominal cavity will prevent the lungs from performing at maximum capacity, and therefore limit the amount of air available for singing. This is also the case within the pelvic cavity. Any tension there will result in poor air influx and limited air for singing.



81

The above diagram shows the breathing process through the movement of the diaphragm. This process can be a bit confusing to one unfamiliar with anatomy, so the diagram is useful to show the connection between the explanation and the process.

⁸¹ Administration, *The abdomen assists in breathing*, January 2016, Basicmedical Key, accessed September 16, 2017, basicmedicalkey.com/abdomen.

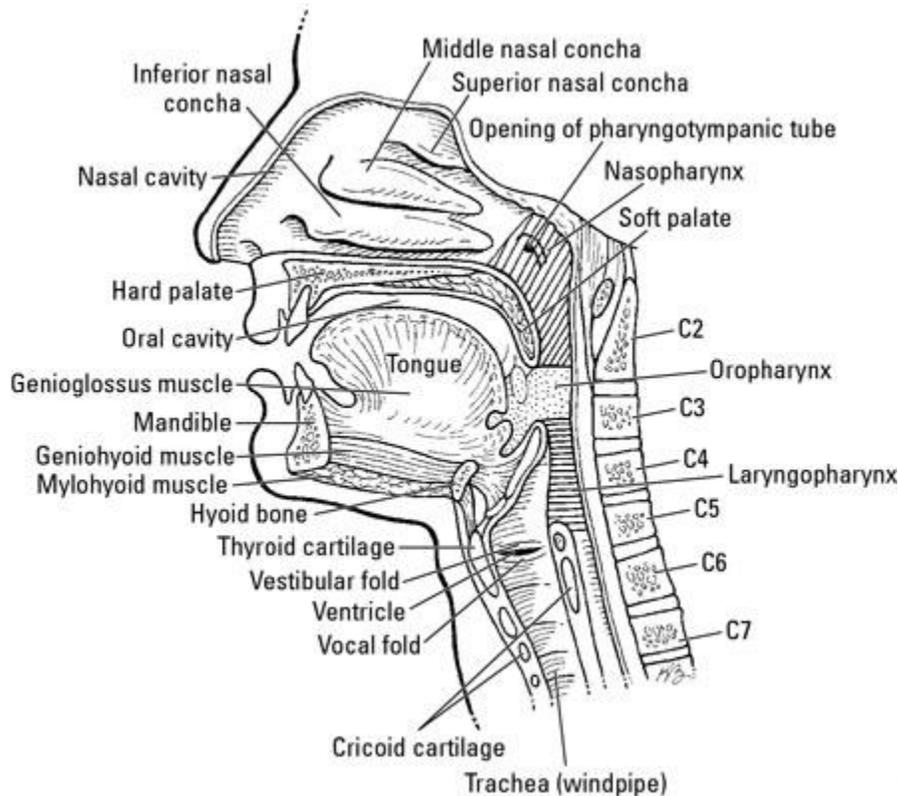
The spine and ribs are very important in the process of breathing. The spine naturally lengthens and gathers on inhalation and exhalation. However, unlike some may think, the spine gathers upon inhalation and lengthens upon exhalation. As this is a natural phenomenon in the body, it is useless to force the spine to lengthen on inhalation and gather on exhalation, as this prevents proper breathing. Another important task of the spine is to provide support. Without support from the spine while singing, exhibited by bad posture, the lungs cannot expand as much as they should, which results in less than optimal singing.

As mentioned previously, the ribs are also incredibly important during the breathing process. The ribs expand and contract during breathing. Because the ribs are made of bone, with joints on one end and cartilage on the other, they allow the lungs to expand to full excursion. Full rib excursion, or full expansion during inhalation and full contraction during exhalation, is the goal for any singer. The diaphragm's movement directly corresponds to the movement of the ribs. As the diaphragm moves down, somewhat compressing itself, the ribs are able to expand. Likewise, as the diaphragm moves back up on exhalation, the ribs are compressed back down and in.⁸²

The throat is another important factor in breathing and the phonation process in that it is the pathway to allow air in and out of the body. The throat is located in the neck. Its two main functions are breathing and swallowing food and drink. An important part of the throat is the larynx, also known as the trachea, which resides in the uppermost part of the windpipe, and its purpose is to keep food, drink, and foreign substances out. It also assists in holding air in the lungs while one exerts. Surprisingly, its use in speaking and singing is actually a secondary function with its primary function being a barrier of foreign substances. The larynx is also known

⁸² Barbara Conable, *What Every Musician Needs to Know About the Body* (Andover Press, 1998).

as the voice box.⁸³ Within the larynx are many different cartilages which assist in the position and framework of the larynx itself.⁸⁴ There are also intrinsic and extrinsic muscles in the larynx which assist in its functioning. The intrinsic muscles assist in phonation, making sound, and valving the larynx (keeping it open or shut), while the extrinsic muscles do such things as swallowing, chewing, and moving the tongue, as well as yawning and inhaling.⁸⁵



86

The above diagram shows the positions of the muscles and cartilages in the larynx. While the nasal cavity is very important for resonance (another part of the vocal process), it is not relevant in this discussion.

⁸³ Barbara Conable, *What Every Musician Needs to Know About the Body* (Andover Press, 1998), 65.

⁸⁴ Barbara Conable, 66-67.

⁸⁵ Barbara Conable, 70-75.

⁸⁶ Shereen Jegtvig and David Terfera, *Divisions of the Pharynx*, n.d., *Clinical Anatomy for Dummies*, accessed September 16, 2017, www.dummies.com.

According to Ware, there are five steps in the vocal process. It is crucial to perform all of these steps to efficiently use the breath to make noise. First, there is volition. Volition occurs when the brain and neurological system send and receive commands from the body in order to control the muscles responsible for the vocal process. Respiration is next, which is when the muscles and organs used for breathing coordinate themselves to control inhalation and exhalation. Phonation is the next step, in which the larynx coordinate airflow and make the vocal folds vibrate to produce a tone. Next, resonance occurs, which means that the combined resonance cavities – the mouth, throat, and nose – increase the tone by acting like secondary vibrators along with the vocal folds. Finally, there is articulation, in which the organs of speech, including the tongue, jaw, cheeks, lips, teeth, hard palate and soft palate, coordinate to produce sounds associated with communication.⁸⁷

Coordination of the mechanisms of the breathing process and the five steps of the vocal process produces complete breathing and a healthy tone. This is the goal of every performer, but because of anxiety, this may not always be possible. In order to assist the performer, this paper provides a guide of sorts to overcome anxiety and produce a full tone using complete, steady breathing.

Associations between Breathing and MPA

In order to link the breathing apparatus and the way it functions to the related symptoms of Music Performance Anxiety - constriction of the chest and shortness of breath - one must first understand a few important psychological concepts: the function of the nervous system, the function of the vagus nerve, and heart rate variability.

⁸⁷ Clifton Ware, *Basics of Vocal Pedagogy: The Foundations and Process of Singing* (New York: McGraw-Hill, 1998), 54.

The fight or flight response, which is very familiar to anxiety victims, is controlled by the body's nervous system, in particular, the autonomic system. The nervous system is divided into the central nervous system, which contains the brain and spinal cord, and the peripheral nervous system, which breaks down into the somatic and autonomic systems. Within the autonomic system are the sympathetic and parasympathetic systems.⁸⁸ The disruption of the sympathetic and parasympathetic systems during an anxious situation gives one the feeling of “fight or flight.”⁸⁹ The sympathetic system excites the body, causing the feelings of fight or flight, while the parasympathetic system allows one to “rest and digest,” giving the body the time it needs to process things as well as perform other bodily functions which can only happen in the “rest” phase.⁹⁰

The vagus nerve plays a key role in maintaining the “rest phase” which helps reduce the symptoms of anxiety. As mentioned before, the rest phase is controlled by the parasympathetic system, in other words. The vagus nerve is one of the longest cranial nerves in the body, and is actually split into two systems, the dorsal system and the ventral system. Dorsal is part of the “freeze” response, while the ventral connects to facial, vocal, and neck muscles, and forms part of the social engagement system.⁹¹ The ventral system's important functions in relation to this topic are its role in breathing and its connection to the heart.⁹² The vagus nerve assists with breathing by keeping the larynx open during respiration. In relation to the heart, the vagus nerve monitors and regulates the heartbeat.⁹³ The social engagement system (mentioned above) regulates the somatic muscles of speech and eating - the larynx, pharynx, and esophagus. It

⁸⁸ Dr. Christy Wolfe in discussion with the author, October 20, 2017.

⁸⁹ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 19.

⁹⁰ Dr. Christy Wolfe in discussion with the author, October 20, 2017.

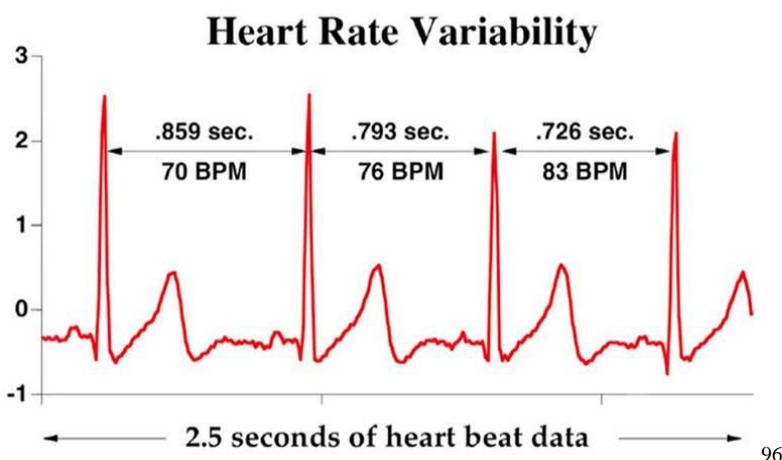
⁹¹ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 21.

⁹² “What is the function of the vagus nerve?” *Innovate Us*, Innovate Us, 2013, accessed October 22, 2017, www.innovateus.net/innopedia/what-function-vagus-nerve.

⁹³ Dr. Christy Wolfe in discussion with the author, October 20, 2017.

regulates the heart and bronchi to promote calm but can also rapidly regulate one's cardiac output to respond to environmental contingencies.⁹⁴

Because breathing is the main focus of this study, heart rate variability must also be discussed. Heart rate variability is important because when one is in an anxiety inducing situation, the heart rate increases, causing less variability in the heart beats. For short-term stressors, this process is advantageous and effective contributing to the organism's responsiveness to the environment. However, for long-term stressors or chronic anxiety, this process can be undesirable in many ways. Heart rate is measured in beats per minute. When a person is in the resting state, ideally breathing is slow and fairly regular, while the heart beats are slow and fairly irregular suggesting high heart rate variability. That means that there should be slight differences in the distance between each heartbeat. High heart rate variability is something to strive for, as it means that one is healthy.⁹⁵



⁹⁴ Dianna Theadora Kenny, *The Psychology of Music Performance Anxiety* (Oxford Press, 2011), 21.

⁹⁵ Dr. Christy Wolfe in discussion with the author, October 20, 2017.

⁹⁶ Charles Wallace, "What's your heart rate variability? It may be time to find out," *Wall Street Journal*, Wall Street Journal, June 26, 2017, accessed October 22, 2017, <https://www.wsj.com/articles/whats-your-heart-rate-variability-it-may-be-time-to-find-out-1498442460>

A high heart rate variability demonstrates the flexibility of the nervous system as well as the body's ability to respond as needed to the environment. During an anxious situation, however, heart rate increases, meaning that the distance between heartbeats is shorter and, therefore, heart rate variability is likely to be minimized and displayed as lower than during a resting measure. Lower measures of heart rate variability at rest are associated with rigidity and inflexibility of responding to the demands of the environment. Chronic anxiety has been associated with higher resting heart rate (beats per minute) and lower resting heart rate variability. These personality and physiological factors are bi-directional in influence, meaning they are developmentally intertwined with one's biological and genetic disposition and experiences.

The vagus nerve plays an interesting role in the regulation of heart rate and heart rate variability – in conjunction with breathing. When one inhales, the vagus nerve withdraws its influence on the heart, and the heart rate increases; this process is associated with the sympathetic nervous system preparing an individual for a “fight or flight” response. When one exhales, the vagus nerve re-engages the heart and slows it down; and this process is associated with the activation of the parasympathetic nervous system or one of “rest and digest.” Thus, the vagus nerve can be considered a “brake” for the heart (i.e., the “vagal brake”). Further, the variability in heart rate that is associated with breathing is known as respiratory sinus arrhythmia and is indicative of one's vagal tone, conceptually related to having a “high resting heart rate variability”. When a person experiences anxiety, their breathing rate increases and this works to decrease the natural and rhythmic functioning of the vagal influence on the heart, making the periods of vagal innervation and de-innervation very brief. Over time and in the face of chronic stressors or states of sympathetic dominance, vagal tone, as well as, resting heart rate variability is decreased making the individual more physiologically rigid and inflexible to the demands of

the environment – thereby, less adaptive and less functional. Breathing and mindfulness/meditation exercises that encourage deep breathing – that is, full inhales with long, slow exhales can retrain the rhythmic functioning of the vagus nerve, thereby increasing resting heart rate variability and increasing one’s physiological preparedness to respond to environmental demands.⁹⁷

There are many ways that anxiety directly affects air flow in the body. When one experiences a period of anxiety, it is the sympathetic nervous system, the neuroendocrine system, the limbic system and amygdala, and the vagus nerve that are activated to produce a “defensive response” in the body.⁹⁸ This especially affects many aspects of mental functioning, which is crucial for playing music. Physical functioning is also incredibly important in the act of performing. The physiological symptoms of MPA, such as tremors, raised heart rate, and hyperventilation, can cause shortness of breath. According to Heathers and Associates, breathing and heart rate are directly related to emotional regulation during music performance.⁹⁹ Therefore, if one feels anxious during a performance, there is a direct and detrimental effect on one’s breathing and heart rate.

Many musicians use beta blockers to reduce their symptoms of anxiety. Although beta blockers suppress the somatic nervous system from responding to the threat, which originally might impair performance quality, it does not suppress the cognitive symptoms of anxiety, which

⁹⁷ Dr. Christy Wolfe in discussion with the author, October 20, 2017.

⁹⁸ Patrick Gannon, "Don't Call It Stage Fright! New Ideas About Treating Music Performance Anxiety," *International Musician*, n.p., 2015, accessed October 4, 2016, www.internationalmusician.org/treating-music-performance-anxiety/.

⁹⁹ James A. J. Heathers and associates, “Matter Over Mind: A Randomized- Controlled Trial of Single-Session Biofeedback Training on Performance Anxiety and Heart Rate Variability in Musicians,” SCAN Research and Teaching Unit, School of Psychology, University of Sydney, October 2012, accessed November 7, 2017.

are equally as troublesome.¹⁰⁰ Therefore, beta blockers allow a musician to perform as well technically, it does not suppress the psychological symptoms of MPA.

While breath might not be the first symptom thought of when referring to Music Performance Anxiety, it is one which affects singers in consequential ways. Anxiety affects the body in many negative ways. Any anxiety may impact the functioning of the vagus nerve. If the functioning of the vagus nerve is negatively impacted, it becomes much more difficult to open and close the throat, which makes breathing increasingly difficult. Additionally, the five-step system to the vocal process is disrupted if one does not breathe in fully.¹⁰¹ Any disruption or distraction to this vocal process causes phonation to lessen in quality and effectivity.

Two treatments which directly affect airflow and MPA are yoga and the Alexander Technique. Yogic breathing has been proven to assist musicians in their breathing practice, and to make deep and steady breathing second nature. By practicing yogic breathing, one may be able to calm down more quickly after an episode of anxiety. It may also assist in preventing the anxiety from occurring, as mentioned previously. The Alexander Technique does not directly relate to breathing per se, but it does have to do with proper alignment of the body, which is crucial to proper airflow. Improper alignment in the body leads to tension in the body. Without a freely moving and relaxed torso and throat, breathing becomes incredibly difficult and forced.

To apply the knowledge of these different anxiety disorders – what they are, what causes them, and their symptoms - and how they function in the body, one must become aware of a person's unique situation. Not everyone suffers from the exact same anxiety disorder, and no two people experience anxiety in the same ways. To be able to apply the knowledge learned here, one

¹⁰⁰ Dianna Theodora Kenny, "All right on the night? Music performance anxiety is more common than you think," *The Conversation*, n.p., 2011, accessed October 4, 2016, theconversation.com/all-right-on-the-night-music-performance-anxiety-is-more-common-than-you-think.

¹⁰¹ Clifton Ware, *Basics of Vocal Pedagogy: The Foundations and Process of Singing* (New York: McGraw-Hill, 1998), 54.

must first understand what kind of anxiety he or she suffers from and to what extent. Once that is understood, one must learn which form of treatment works best for them. After that, applying the treatment to one's situation will allow one to re-use the knowledge when faced with other anxiety-producing situations, such as a performance.

According to the University of Wisconsin-Eau Claire counselors, there are four steps for managing performance anxiety:

1. Self-assessment, which includes identifying problematic thinking, listing one's personal motives for performing, and identifying one's capabilities and limitations as a performer;
2. Gradual exposure and preparation, which includes exposing oneself to mild-moderate levels of stress, such as performing in front of smaller crowds, visualizing the performance, or taping oneself, to be thoroughly prepared, and to use relaxation techniques;
3. During the performance, some suggestions include visualizing the audience as allies instead of critics, maintaining a normal routine before and after the performance, acting calm, trying to overlook minor errors, and trying to "get out of one's head" and become a detached observer;
4. After the performance, some suggestions are to temper external feedback with internal beliefs and expectations already established, and to ask others their observations of the performance without asking oneself first.¹⁰²

These steps may help apply one's knowledge of MPA and better assist in the performance. In some cases, people can actually use anxiety to their benefit during a performance.¹⁰³ Low levels of anxiety can aid in a performance by prompting one to become better prepared for the performance. During the performance, if one becomes hyperaware of the situation and surroundings, he or she may produce a better performance.

¹⁰² Robin Abraham and Katherine Schneider, "Coping with Music Performance Anxiety," *University of Wisconsin-Eau Claire Counseling Services*, n.p., 2001, accessed October 19, 2016, www.uwec.edu/Counsel/pubs/selfhelp/musicanxiety.htm.

¹⁰³ Ibid.

In theory, becoming knowledgeable about the different types of anxiety and how to reduce the symptoms should allow one to apply a treatment before or during an anxiety-causing situation and the anxiety should be reduced. Due to the fact that yogic breathing is a proven treatment for MPA, doing some yogic breathing before and during a performance may be useful in preventing breathing problems caused by anxiety.

Case Study Analysis

This case study analyzes two performances of the same song, *Beau Soir* by Debussy, using the above knowledge. In the case study, I analyzed the benefits of yoga as one supposed treatment for MPA. While yoga has been previously studied and used as a treatment for MPA, this study furthers the proof of its viability as a treatment for MPA. I performed an hour or more of yoga per week from October 5, 2017 until February 27, 2018. My belief that the combination of calming yoga practice with the knowledge of anxiety disorders – their causes, symptoms, and treatments – and the knowledge of the function of the breathing apparatus would reduce the symptoms of MPA, especially those symptoms related to breathing properly.

My degree lies in Vocal Performance. I focused mainly on solo performance but also sang in choral ensembles. I have experienced a high degree of anxiety while performing solo in public recitals. I felt that anxiety often interfered with my performance, despite preparedness of the piece or pieces, especially in regard to breathing. In the past, the only management techniques I used were physical exercise and occasional deep breathing exercises. Analysis of the two performances may now begin.

The first performance occurred on October 5, 2017. At this time, the case study had not yet begun. The song performed, *Beau Soir* by Debussy, is a challenging piece in itself. Debussy was an impressionist composer and drew from influences of the impressionist movement. Some

influences that he drew on were to “paint” a vague picture within his music, and to do so in nontraditional ways. An example of a nontraditional aspect of the piece is that the accompaniment and vocal line are dissimilar and there are few cues in the accompaniment to assist the performer. Other difficulties include: singing in the French language, properly interpreting the text using facial expressions and dynamic changes, singing the proper notes and rhythms as the accompaniment plays beneath the vocal line, and doing all these things in front of an audience.

Initial observation of the performance revealed some anxiety-induced fidgeting, swaying, loss of posture, and various problems involving the breath which impeded the performance in many ways. Other symptoms not necessarily visible but still present included increased heart rate, some less visible tension, and some failure of technique. The breathing problems which occurred included taking frequent breaths, resulting in a disconnect within the phrases, not taking full breaths, which produced a weaker sound and less vibrato due to less air flow, and unsure high notes due to not having enough air, resulting in a squeaky sound. Those breathing problems are the result of what is called hyperfunctional singing, which means that there is tension in the muscles controlling vocal production.¹⁰⁴ This created a strained sound and prevented proper airflow. Vibrato, as mentioned above, is classified as “the audible, regular pulsation, oscillation, or fluctuation of a single pitch.”¹⁰⁵ While I did get slightly more comfortable toward the end of the piece, resulting in less fidgeting, there were still problems concerning deep breathing as well as swaying. Tension and bad posture in the body also prevented me from taking fuller breaths.

Anxiety also increased my heart rate, producing a loss of focus during parts of the piece, leading to a failure of technique. This was due to decreased heart rate variability related to

¹⁰⁴ Clifton Ware, *Basics of Vocal Pedagogy: The Foundations and Process of Singing* (New York: McGraw-Hill, 1998), 197.

¹⁰⁵ Clifton Ware, 180.

increased activity in the heart caused by anxiety. The “fight or flight response” in the brain – specifically the activation of the sympathetic nervous system, the neuroendocrine system, the limbic system and amygdala, and the vagus nerve caused this activity in the brain and heart. This activation impacted the function of the vagus nerve, leading to a loss of focus, throat tightening which made it harder to breathe, and an overall poor performance.¹⁰⁶

The second performance took place on February 27, 2018, almost 21 weeks later. This performance occurred in a formal setting, after much more practice of the piece, alone and in front of small audiences, as well as yoga practice to better control the breathing process. Initial observation of this performance reveals much less anxiety-induced fidgeting, better breathing, and only some tension in the hands and arms. Better control over the breath combined with the student taking fuller and deeper breaths produced a better overall sound, increased vibrato, and better phrasing of the piece. While there was still some tension in the hands, as well as some swaying, this performance showed much improvement. Some symptoms not necessarily visible were increased heart rate and tension in various places throughout the body. While posture was much less of an issue in this performance, I continued to struggle to remain in good alignment.

According to Ware, “the main way to reduce anxiety is to focus on the external goal or task at hand.”¹⁰⁷ This is exactly what happened in this second performance. I was so focused on performing well and breathing deeply that I had no time to feel anxious. This “distraction” caused by my intense focus on breathing well prevented the brain from negatively influencing the function of the vagus nerve. The focus on the breath allowed the vagus nerve to engage and disengage the heart in a natural and rhythmic fashion, thus maintaining a healthy vagal tone. This technique drastically improved the performance.

¹⁰⁶ Dr. Christy Wolfe in discussion with the author, October 20, 2017.

¹⁰⁷ Clifton Ware, *Basics of Vocal Pedagogy: The Foundations and Process of Singing* (New York: McGraw-Hill, 1998), 23.

It should be noted that the settings of each performance are not the same. The first is a vocal area performance class where vocal performance majors perform for each other and receive feedback on a weekly basis. As such, this performance setting contained friends and acquaintances with few stressors present. The second is a formal vocal recital, lasting roughly one hour in length, representing various styles, periods, and languages in the music performed. As such, this performance setting contained friends and strangers alike with many stressors present. Also, the first performance occurred many months before the second, giving the second performance an advantage over the first in allowing me more time to practice.

As mentioned previously, I utilized one treatment of MPA clinically proven to reduce MPA in musicians: yoga. The study performed by Khalsa and Associates¹⁰⁸ was one of few available for review. Because of this, and because it is one of the cheaper treatment options, yoga was the most appropriate treatment plan for this study. I focused on practicing yoga for relaxation and breath control. I alternated her use of videos online, which specifically focused on relaxation and breath control, with the DVD gifted to me called “3 Week Yoga Retreat,” which did not have a focus per say but worked on improving the entire body. I practiced yoga at least once per week for 20 weeks. The knowledge of the breathing apparatus produced a better awareness of breath and allowed me to benefit more from the yoga sessions.

The treatment option, yoga, was chosen due to many factors. Yoga is an inexpensive treatment option compared to others such as therapy or medication. It is also a safer treatment option compared to using drugs or alcohol to suppress symptoms. Yoga is also easily accessible as there are countless yoga videos available online for free or for purchase. This access to online

¹⁰⁸ Sat Bir S. Khalsa, et al., “Yoga Ameliorates Performance Anxiety and Mood Disturbance in Young Professional Musicians,” *Springer Science+Business Media, LLC*, published August 6, 2009, accessed October 22, 2017.

videos, plus a yoga DVD, allowed to practice yoga consistently throughout the study without having to spend a lot of money herself.

Conclusion

Anxiety affects many people in their day to day lives. For musicians, performing is a part of their lives about which they can't afford to be anxious. The research and case study referenced in this document attempt to further prove that yoga is a viable treatment option for music performance anxiety. This study reflects and furthers the study performed by Khalsa and Associates,¹⁰⁹ which exposed groups of musicians to different yoga practices and studied their changes in anxiety and behavior during a performance situation.

This case study involved only one student in her final year of undergraduate level college. Throughout the past two years, I studied MPA as well as other types of related anxiety disorders such as generalized anxiety disorder, social anxiety disorder (social phobia), and performance anxiety. Within each of these specific anxiety disorders, I researched causes, symptoms, and specific treatment options. I also studied anxiety as a blanket term, and researched causes, symptoms, and treatment options for any type of anxiety.

One such cause for anxiety which is incredibly relevant to this study is the “fight or flight” response in the brain. During this process, the sympathetic nervous system, the neuroendocrine system, the limbic system and amygdala, and the vagus nerve are activated to produce a “defensive response” in the body. This increased sympathetic nervous system activity caused the heart rate to increase due to the withdrawal of vagal influence on the heart (i.e., the vagal brake), likely producing low heart rate variability.¹¹⁰

¹⁰⁹ Sat Bir S. Khalsa, et al., “Yoga Ameliorates Performance Anxiety and Mood Disturbance in Young Professional Musicians,” *Springer Science+Business Media, LLC*, published August 6, 2009, accessed October 22, 2017.

¹¹⁰ Dr. Christy Wolfe in discussion with the author, October 20, 2017.

I also researched the anatomy of the breathing apparatus to better understand how the breathing process works in the anatomical sense. I then combined the knowledge of anxiety and the different anxiety disorders, the knowledge of what happens in the brain during an anxious situation, and the way the breathing apparatus functions to produce a background for the case study performed. This knowledge allowed me to make connections between the three seemingly different topics. By understanding the functioning of the brain during an anxious situation, I was able to understand how and why it becomes harder to breathe during an anxious situation. Combining this knowledge with the functioning of the breathing apparatus allowed me to prepare for my next anxious situation and prevent the breathing problems associated with anxiety. Also, combining this knowledge and preparation with knowledge of the different anxiety disorders allowed me to understand how and why different anxieties occur and how to prevent them from occurring in the future.

By researching different anxiety disorders and their treatments, I was able to choose an appropriate treatment plan for my own anxiety – yoga practice – and test this treatment plan in a case study of sorts. This case study began on October 5, 2017 and ended on February 27, 2018. The case study analyzed two performances of the same song, between which the treatment plan was implemented, and each performance was analyzed to determine if the treatment was viable.

The results of this case study indicate that the existence of MPA may be reduced in musicians facing anxiety in performance situations. Analysis of each performance determined that the treatment plan was indeed successful. My belief that the combined knowledge of anxiety and its different forms, the brain's response, and the functioning of the breathing apparatus as well as performing yoga weekly to reduce stress and increase awareness of the breath allowed me to perform better and reduce my anxiety in a performance setting.

Although several factors may have contributed to bias in the case study, including two different performance venues, different audiences, the size of the audiences, and the amount of time to practice the song between each performance, I stand behind the veracity of my conclusions. I believe that repeating the study with more participants and a more professional and scientific approach will simply reinforce my findings.

In conclusion, this thesis supports the premise that knowledge of the types of anxiety, together with the treatment options discussed above, can positively impact a performer's incidence of Music Performance Anxiety and severity of symptoms.

Bibliography

Abraham, Robin, and Katherine Schneider. "Coping with Music Performance Anxiety." *University of Wisconsin-Eau Claire Counseling Services*. N.p., 2001. Accessed October 19, 2016. www.uwec.edu/Counsel/pubs/selfhelp/musicanxiety.htm.

Administration. *Orientation of abdominal and pelvic cavities*. January 2016. Basicmedical Key. Accessed September 16, 2017. basicmedicalkey.com/abdomen.

Administration. *The abdomen assists in breathing*. January 2016. Basicmedical Key. Accessed September 16, 2017. basicmedicalkey.com/abdomen.

Attwood, Tony, PH.D. "Social Anxiety Disorder." N.p., n.d. Accessed November 2, 2016. www.anxiety.org/social-anxiety-disorder.

Attwood, Tony, PH.D. "What Is Anxiety?" N.p., n.d. Accessed November 2, 2016. www.anxiety.org/what-is-anxiety.

Cho, Michael. "What Happens to Our Brains When We Have Stage Fright: The Science of Public Speaking." *Buffer Social*. N.p., April 30, 2013. Accessed October 4, 2016.

Conable, Barbara. *What Every Musician Needs to Know About the Body*. Andover Press, 1998.

Cope, Stephen, Sat Bir S. Khalsa, Stephanie M. Shorter, Elyse Sklar, and Grace Wyshak. "Yoga Ameliorates Performance Anxiety and Mood Disturbance in Young Professional Musicians." Springer Science+Business Media, LLC, August 6, 2009. Accessed September 16, 2017.

Gannon, Patrick. "Don't Call It Stage Fright! New Ideas About Treating Music Performance Anxiety." *International Musician*. N.p., 2015. Accessed October 4, 2016. www.internationalmusician.org/treating-music-performance-anxiety/.

Heathers, James A. J., Andrew H. Kemp, Tim Outhred, Daniel S. Quintana, and Ruth Wells. "Matter Over Mind: A Randomized- Controlled Trial of Single-Session Biofeedback Training on Performance Anxiety and Heart Rate Variability in Musicians." SCAN Research and Teaching Unit, School of Psychology, University of Sydney, October 2012. Accessed November 7, 2017.

Jegtvig, Shereen, and David Terfera. *Divisions of the Pharynx*. N.d. Clinical Anatomy for Dummies. Accessed September 16, 2017. www.dummies.com.

Kenny, Dianna Theadora. "All Right on the Night? Music Performance Anxiety Is More Common than You Think." *The Conversation*. N.p., 2011. Accessed October 19, 2016. theconversation.com/all-right-on-the-night-music-performance-anxiety-is-more-common-than-you-think.

Kenny, Dianna Theadora. *The Psychology of Music Performance Anxiety*. Oxford Press, 2011.

Kenny, Tim. "Generalized Anxiety Disorder." *Patient*. N.p., 2016. Accessed November 2, 2016. patient.info/health/generalized-anxiety-disorder-leaflet.

Khalsa, Sat Bir S., Stephanie M. Shorter, Stephen Cope, Grace Wyshak, and Elyse Sklar. "Yoga Ameliorates Performance Anxiety and Mood Disturbance in Young Professional Musicians." *Springer Science+Business Media, LLC*. Published August 6, 2009. Accessed October 22, 2017.

McKinney, James C. *The Diagnosis & Correction of Vocal Faults: A Manual for Teachers of Singing & for Choir Directors*. Long Grove, Il.: Waveland, 2005.

Miller, Carole B. "A Discussion on Performance Anxiety." *Mostlywind*. N.p., 2011. Accessed October 19, 2016. www.mostlywind.co.uk/performance_anxiety.html.

Wallace, Charles. "What's your heart rate variability? It may be time to find out." *Wall Street Journal*. Wall Street Journal, June 26, 2017. Accessed October 22, 2017.

<https://www.wsj.com/articles/whats-your-heart-rate-variability-it-may-be-time-to-find-out-1498442460>

Ware, Clifton. *Basics of Vocal Pedagogy: The Foundations and Process of Singing*. New York: McGraw-Hill, 1998.

"What Is Anxiety?" *Anxiety & Behavioral Health Clinic*. Anxiety and Behavioral Health Clinic, n.d. Accessed November 2, 2016. anxietyclinic.fsu.edu/aboutanxiety/main.php.

"What is the function of the vagus nerve?" *Innovate Us*, Innovate Us, 2013. Accessed October 22, 2017. www.innovateus.net/innopedia/what-function-vagus-nerve.

Dr. Christy Wolfe in discussion with the author, October 20, 2017.

Woody, Robert H. "When Practice, Practice, Practice Isn't the Answer." *Psychology Today*. N.p., 2012. Accessed October 19, 2016. www.psychologytoday.com/blog/live-in-concert/201207/when-practice-practice-practice-isn't-the-answer.