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A Multiple Case Study of Music Therapists' Perceptions of Vocal Health

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A MULTIPLE CASE STUDY OF MUSIC THERAPISTS' PERCEPTIONS OF VOCAL HEALTH

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Music in the
College of Fine Arts
at the University of Kentucky

By

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ABSTRACT OF THESIS

A MULTIPLE CASE STUDY OF MUSIC THERAPISTS' PERCEPTIONS OF VOCAL HEALTH

As professional voice users, music therapists should be aware of their vocal health and the risks for developing vocal problems through habitual vocal use. Vocal abuse refers to vocal activities such as yelling, singing with poor technique, and shouting which cause the laryngeal mechanism to not function optimally. Although many music therapists are at risk for vocal abuse, to my knowledge, no researchers have looked at how music therapists are using their voices. The purpose of this qualitative study was to better understand music therapists' perceptions of their vocal health and vocal health training. I used a multiple case study design to develop a deeper understanding of vocal training that music therapists have had in the past, their current perception of their vocal health, and factors that facilitate and inhibit their vocal health. The participants were five board-certified music therapists (MT-BC) who had either worked in their current position for at least three years or had worked with the population they currently serve for three or more years. Although the clinical settings where participants worked varied (e.g., schools, inpatient hospital, clinics, and private practice), all five participants worked in Kentucky. Participants took part in one in-person semi-structured interview, completed a vocal health diary for five workdays, and responded to follow-up questions through email. I manually transcribed interviews and coded responses and another researcher assisted with coding. Qualitative analysis revealed that several factors facilitated the vocal health of the music therapists, specifically: feedback during music therapist training, home remedies, medical interventions, and motivation to continue vocal training. Several factors that inhibited the music therapists from achieving their optimal vocal health were lack of training, extended vocal use, the negative impact of allergies and sickness, and logistical and financial barriers. All participants experienced vocal problems at some point in their professional career but did not seek additional vocal training because of the inhibitive factors. The findings suggest that music therapists would benefit from additional vocal training opportunities within their entry education and training and easily accessible vocal health resources and continuing education opportunities specific to the field of music therapy. Additionally, there is a need for additional research on the effects of vocal training programs in music therapy.

KEYWORDS: Music Therapy Competencies, Vocal Abuse, Vocal Health, Vocal Health Training, Vocal Problems

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INTRODUCTION

Most people use their voices daily in nearly every aspect of their personal and professional lives (LaPine, 2009). The use of the voice for frequent crucial communication is often overlooked until individuals develop severe vocal health problems (Lehto, 2005). According to the U.S. Department of Health & Human Services and the National Institute on Deafness and Other Communication Disorders (NIDCD), approximately 17.9 million adults living in the U.S., or 7.9% of the general population, reported having a vocal problem in 2016 (USDHHS, 2016). Even more troubling, 4% of the general population had a vocal health problem that lasted a week or longer (NIDCD, 2016). People who suffer from severe vocal problems may experience a lower quality of life both personally and professionally (NIDCD, 2016).

People who heavily rely on their voices for their jobs (e.g., singers, teachers, doctors, nurses, salespeople, and public speakers) are at risk for vocal abuse or misuse (Helding, 2008; LaPine, 2008; USDHHS, 2016). Research about such occupational voice users is lacking, especially in comparison to occupational hearing disorders (Lehto, 2005). Several researchers in different fields have studied how vocal health problems affect their occupational voice users (i.e. vocal professionals) (Buckley et al., 2015; Schwartz, 2006; Waldon, 2018). Helping professionals and researchers have recognized that preventing and reducing vocal health problems is necessary for occupational voice users to ensure career longevity; several have provided suggestions for optimal vocal health in preventing and combating vocal health problems (Hackworth, 2007; LaPine, 2008; Lehto, 2005; Roy et al., 2001; Salvador, 2010; Seo, 2013; Waldon, 2018).

Early identification and treatment are important ways to reduce the severity of a vocal problem and decrease recovery time. Treatment often includes the recommendation for vocal rest (Lehto, 2005). Limiting or not using the voice, however, is not an option for many vocal professionals (i.e. people who use their voice as their main tool for their work) because of severe financial consequences, particularly if recovery time is extended. Therefore, vocal professionals may not focus on their voices or their vocal deficits until they become a big problem or negatively affect their work performance (Buckley et al., 2015; Hackworth, 2007; Lehto, 2005).

Music educators are at high risk for developing vocal problems due to their daily vocal demands (Doherty & van Mersbergen, 2017; Schwartz, 2009). Researchers estimate that about fifty percent of music teachers experience vocal disorders, even those with extensive vocal training (Doherty & van Mersbergen, 2017; Schwartz, 2009). Music educators and music therapists often sing or talk for at least half of their workday, which can contribute to vocal disorders (Baker & Cohen, 2017).

Music therapists are considered vocal professionals who may be at risk for vocal problems due to their daily vocal demands (Boyle & Engen, 2008). They provide services to clients in individual and group settings and must have the musical and clinical foundations to complete their work. Singing and talking are necessary for a music therapist to be able to communicate with their clients and other professionals. Although music therapy practitioners continue to expand and develop their evidence-based practices in addressing and guiding the vocal health of clients and patients (Boyle & Engen, 2008), there is limited research on the vocal health of music therapists (Waldon,

2018). However, existing research indicated that almost half of music therapists (43%) had experienced a vocal health problem at least once (Waldon, 2018).

Because music therapists are at a higher risk for the development of voice disorders compared to the general population, they need increased awareness of, and education on, the importance of vocal health (Boyle & Engen, 2008; Waldon, 2018). More research and education about vocal health for music therapists is needed to help prevent and treat voice disorders. Music therapy researchers first need to consider what steps music therapists are already taking to protect their voices and develop a deeper understanding of the vocal training they have had in the past. By better understanding how music therapists use their voice, future researchers can further study vocal training programs and interventions to prevent vocal problems. Currently there is a gap in the literature, as I could find no qualitative studies about what music therapists are doing to protect their vocal health or about the vocal training they have acquired. Therefore, the purpose of this study was to better understand music therapists' perceptions of their vocal health and vocal health training. The aims were to develop a deeper understanding of the vocal training music therapists have had in the past, their current perceptions of their vocal health, and factors that facilitate and inhibit their vocal health.

The research questions were:

(1) What vocal training did music therapists receive in their past?

(2) How do music therapists currently perceive their vocal health?

(3) What factors do music therapists cite as facilitative of desired vocal health?

(4) What factors do music therapists cite as inhibitive of desired vocal health?

Operational Definitions

Lombard Effect is defined as the phenomenon in which people innately produce a louder voice when the environment becomes louder (LaPine, 2008).

Music Therapist is defined as a credentialed professional who determines and utilizes music therapy approaches to effectively aid in restoration, maintenance, and improvement in mental and physical health (AMTA, 2020). Because this study was conducted in the United States and all participants lived in the United states, for the purpose of this study, the term music therapist refers to a board-certified music therapist (MT-BC).

Music Therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program (AMTA, 2020).

Occupational Voice User/Vocal Professional is defined as a person who uses their voice as a main tool in their work or occupation (Lehto, 2005). In this paper, the terms occupational voice user and vocal professional will be used interchangeably.

Vocal Abuse is defined as vocal activities such as yelling, singing with poor technique, and shouting which cause the laryngeal mechanism to not function optimally (LaPine, 2008).

Vocal Barriers are defined as obstacles a person experiences in using their voice for any amount of time (Schwartz, 2006).

Vocal Health is defined as how the voice functions, both in terms of breathing and vocal fold action (LaPine, 2008).

Vocal Misuse is defined as non-vocal activities such as vocal fold closure during physical exertion and coughing, which cause the laryngeal mechanism to not function optimally (LaPine, 2008).

A *Vocal Problem* is defined as anytime one's voice does not work, perform, or sound as one feels it normally should, so that it interferes with communication (Roy et al., 2001).

Vocal Training is defined as a course of study related to the voice in an individual or group setting, typically gained over an extended period (Helding, 2008).

CHAPTER 2.

LITERATURE REVIEW

This review of the literature includes research about professionals at risk for vocal health problems, suggestions for optimizing vocal health, and research on vocal health for music therapists. The literature included in this review was not bounded by time, since there has not been much research in this area and older studies showed relevance. I first review the literature about professionals at risk to better understand how vocal health problems affect different populations. Next, I summarize research on improving vocal health training for occupational voice users, particularly music educators. Finally, I review research specifically regarding music therapists' vocal health to identify existing trends and opportunities for further research.

Professionals at Risk for Vocal Abuse

Occupational voice users (also called vocal professionals) are people who rely on extended periods of talking or singing for their vocation (e.g., music teachers, customer service advisors, football coaches) (LaPine, 2008; USDHHS, 2016). These individuals are at risk for suffering from vocal abuse or misuse (LaPine, 2008). This section is divided into two sub-sections to better highlight the unique challenges of professionals who work in speaking and singing professions.

Vocal Problems Within Speaking Professions

Extensive research supports the prevalence of vocal problems among call-center customer service advisors, who use their voice as a main tool in their work. In one study, Lehto (2005) examined vocal symptoms that telephone customer service advisors experienced throughout the workday. In a pre-study questionnaire, participants reported

experiencing vocal strain, hoarseness, feeling choked, feeling a lump in the throat, frequently clearing throat due to mucus, a dry itchy throat, a weak voice, cracks or breaks in voice, shortness of air or need to gasp for air, gradual decline in voice throughout the day, and their voices requiring strenuous effort to speak. Results of this research indicated that early identification and treatment of voice problems was likely to reduce the severity and time required for vocal recovery. However, the participants reported devoting little awareness to their voices until they had developed a vocal problem or vocal deficit. Before occupational voice users seek out formal vocal training, they must first be able to identify a vocal deficit in themselves. Lehto cautioned that self-identifying a voice problem is not straightforward and requires individuals to mindfully examine their physical, social, emotional, and professional well-being (Lehto, 2005). The results of Lehto's study indicate that occupational voice users who are at high risk for vocal problems may not pay attention to their vocal health until they experience severe problems.

Research in other disciplines supports Lehto's claim that occupational voice users have reported devoting little awareness to their voices. In a study of professional football coaches' voice use patterns and vocal demands across workplace environments, Buckley et al. (2015) found that football coaches also devoted little awareness to their voices. Data was collected through an acoustic voice measurement device (Ambulatory Phonation Monitor), semi-structured interviews, and self-report using the Voice Capabilities Questionnaire. Findings suggested that coaches experience heavy vocal loads during player training. All 12 coaches reported experiencing at least one vocal problem or symptom and reported their work schedule, tasks, and vocal demands impacted their

voices. The coaches reported their voices as crucial for their profession; however, they reported devoting very little awareness to factors that impacted their voices. Instead, the coaches dismissed voice symptoms as an inevitable part of their jobs. In an earlier study, teachers also said that vocal problems were an occupational hazard of teaching school (Roy et al., 2001). In a study of 58 full-time elementary and secondary school teachers with a history of past vocal problems and/or were experiencing a vocal problem at the time of the study, Roy et al. found that teachers frequently report vocal problems and seek medical assistance to address these voice related complaints (Roy et al., 2001). Collectively, the findings from these studies suggest that occupational voice users may accept the vocal problems they experience as normal parts of their jobs and that their vocal problems sometimes require medical interventions to support their vocal health (Buckley et al., 2015; Roy et al., 2001).

Vocal Problems Within Singing Professions

Researchers have found that both vocal professionals and students training to become vocal professionals experience vocal problems at alarmingly high rates. Galloway and Berry's (1981) study of college vocal performance and vocal pedagogy majors revealed that these students experienced vocal health problems at a much higher rate than the national average, which was 7.6% in 2016 (U.S. Department of Health and Human Services, 2016). Specifically, 23 (out of 40) or 57.5% of vocal performance or vocal pedagogy majors surveyed had at least one vocal disorder- more than seven times the national average. Fifteen of the students had chronic conditions with the need for vocal therapy, while 16 had acute problems associated with seasonal/temporary deficits. Some participants experienced a combination of these vocal health issues. The female

college vocal majors experienced more severe cases of nodules, stridency, and articulation. These vocal health problems impacted their ability to participate in voice lessons and school ensembles. Two of the students were even placed on complete vocal rest by physicians because they presented with advanced stages of vocal nodules. Vocal music majors experienced many vocal demands set by their teachers, conductors, and/or themselves. Many of the students struggled to meet these demands, and several had to compromise their vocal health in order to fulfill their school requirements. These findings suggest that habitual vocal overuse can lead to vocal abuse and misuse, which can potentially cause irreversible damage (Galloway & Berry, 1981).

Both students training to be vocal professionals and music teachers may be affected by voice disorders, although the prevalence of voice disorders may vary based on one's primary instrument (Baker & Cohen, 2017; Doherty & van Mersbergen, 2017). In a study by Doherty and van Mersbergen (2017), music educators whose primary instrument was voice had more voice disorders than instrumentalists. Choral directors, who use their voices to sing and speak throughout the day, were frequently affected by voice disorders. In another study, Baker and Cohen (2017) found that music educators and music therapists showed that both groups sing for at least 50% of the workday, putting them at risk for vocal disorders due to the vocal demands of extended vocal use. These findings suggest that music educators, particularly choral directors, are at great risk for experiencing vocal problems. To address the need for further research about choral directors and their vocal health, Schwartz (2009) studied the effects of extended vocal abuse in choral directors.

Schwartz (2009) found that choral directors were at risk for developing vocal problems. Middle school choral directors (n = 26) and high school choral directors (n = 25) completed a modified Voice Handicap Index (VHI) that assessed the impact of voice use and function related to their quality of life, which includes functional, emotional, and physical well-being. The researcher also used an objective measurement of vocal health through examining characteristic of the voice using an observational measure, the Voice Range Profile (VRP). The findings revealed that in comparison to vocally untrained populations and vocally trained populations, choral directors' intensity range (perceived volume) was significantly smaller in range. That is, choral directors did not notice a change in the loudness of their voices as much as vocally untrained and vocally trained populations.

Choral directors' versions of "soft" and "loud" voices were either identical or very similar. The inability to differentiate between these volume changes in their speech and singing can be caused by continuous vocal use within the same intensity range or volume range. Even when choral directors were speaking at their perceived quietest (i.e., the lowest in their intensity range) their voice level intensity and volume was significantly higher than the general population. Another trend that emerged was that the choral directors had a significantly smaller semitone range (i.e., a smaller vocal range) than vocally trained and untrained individuals. Participants reported taking between 0–12 workshops or classes focused on vocal pedagogy or vocal health-related classes and approximately 23% of participants rated their present vocal health status as "Fair." Schwartz believed that the choral directors were unaware of their reduced vocal capabilities shown in the Voice Range Profile due to self-rating their vocal health

inaccurately using the Voice Handicap Index. Additionally, Schwartz believed that age, gender, years of teaching, level of teaching, and vocal health education contributed to the reduced frequency and intensity ranges of the choral directors (Schwartz, 2009). The findings from this study suggest that the choral directors extended vocal use resulted in a decreased vocal range and intensity range in their voices. Other researchers have recognized the vocal demands choral directors face and have provided suggestions for optimal vocal health.

Suggestions for singing professionals. Several researchers have provided vocal suggestions that professionals who use their voices can implement when seeking personal vocal training is not easily accessible. In the field of music education, researchers have sought to provide educators with tools to use to protect their voices. In 2010, Dr. Karen Salvador, who is currently an Assistant Professor of Music Education at Michigan State University, published an article on prevention strategies for preserving vocal health in the classroom setting. First, by incorporating vocal health into the classroom management strategy, Salvador suggested that music educators can improve their personal vocal health while engaging students nonverbally. Second, music educators also need to be thoughtful of their students' vocal health by being good models and incorporating vocal breaks into each lesson. Lastly, Salvador urged music educators to be alert for signs of vocal damage in their voices and their students' voices (Salvador, 2010). These suggestions highlight the importance of music educators being aware of their voices and incorporating healthy vocal habits in their classroom. In addition to the suggestions offered by Salvador, a music education scholar, researchers in other fields have provided evidence-based suggestions for music educators based on their research.

Dr. Peter LaPine, a professor in the Department of Communicative Sciences and Disorders at Michigan State University, provided a vocal guide to music teachers based on his research findings (2008). In order to achieve good vocal hygiene, music educators must first understand the physical aspects of vocal production, including the larynx. LaPine discussed how a healthy voice works because he recognized the difficulty in self-diagnosing vocal problems without an understanding of a properly functioning voice. Further, he offered urged music educators to avoid activities associated with vocal misuse (e.g., non-vocal activities such as effortful closing of the vocal folds during physical exertion, coughing, and throat-clearing.) He also cautioned the educators against activities associated with vocal abuse (e.g., shouting, yelling, and singing with poor technique) (LaPine, 2008).

LaPine provided several suggestions for optimal vocal health for music educators, namely (a) staying hydrated, (b) using conservative vocal rest, (c) using good posture, (d) recognizing painful phonation, (e) checking one's voice with the internal calibrator, and (f) and being aware of the Lombard effect (2008). He also urged music educators to preserve their vocal health in the classroom by warming up their voices and their bodies through movement to increase heart rate and stretching to release tension and improve posture. LaPine's research supports music educators by providing information about how a healthy voice functions and vocal health suggestions. LaPine is an example of a researchers from another discipline seeking to help music educators use their voices optimally. In the field of music therapy, Seo (2013), a board-certified music therapist provided vocal suggestions that music educators that can implement inside and outside of the classroom.

Seo (2013) compiled a resource guide for music educators to maintain their vocal health. Vocalists carry their instrument with them at all times and therefore the voice must be carefully considered because the voice cannot be replaced if broken. Seo recognized that taking care of the voice is a huge part of a music educator's job, partly because they must teach their students how to keep their voices healthy. In Seo's (2013) resource guide, she provided several suggestions for music educators to maintain their vocal health including staying hydrated, avoiding clearing your throat, using a normal volume when speaking or singing, and practicing vocal rest as the most important vocal recovery method of any vocal problem (Seo, 2013). LaPine (2008), Seo, (2013), and other researchers' suggestions for music educators to achieve optimal vocal health serve as valuable tools for music educators and music therapists. I organized the findings of several researchers who provided suggestions for music educators in Figure 1.

Figure 1

Suggestions for Vocal Health

Suggestions for Optimal Vocal Health for Music Educators	
Suggestions	Details
Staying Hydrated	Avoid caffeinated beverages and drink water when possible. (Hackworth, 2007; LaPine, 2008, Salvador, 2010; Seo, 2013)
Warm Up your Voice	Warming up the voice helps eliminate vocal strain and can decrease the chances you develop a vocal problem. (Hackworth, 2007; Salvador, 2010; Seo, 2013)
Avoid Talking Over Music/Noise	Use nonverbal prompts to avoid talking over music or noise. (Hackworth, 2007; LaPine, 2008; Salvador, 2010; Seo, 2013)
Use Conservative Vocal Rest	Rest the voice after extended use for one hour by speaking quietly when necessary to only those close enough in proximity to touch. Use nonverbal commands and prompts when possible. (Hackworth, 2007; LaPine, 2008; Seo, 2013)
Use Good Posture	Keep the trachea in line with the larynx and hold the eyes and chin parallel to the floor. Avoid tilting or turning the head as the change in airway configuration can result in a change in vocal effort. (LaPine, 2008; Salvador, 2010)
Recognize Painful Phonation	Recognize when it becomes painful to use the voice. (Hackworth, 2007; Lapine, 2008; Salvador, 2010; Seo, 2013)
Check your Voice with the Internal Calibrator	Check your vocal pitch and quality after a period of conservative vocal rest by saying the phrase "uh huh" and focusing on the quality of "huh." (LaPine, 2008)
Be Aware of the Lombard Effect and Avoid Talking Louder	The phenomenon in which people innately produce a louder voice when the environment becomes louder. Music educators should avoid talking louder when the environment becomes louder. (Hackworth, 2007; LaPine, 2008; Seo, 2013)
Choral Directors Should Avoid Singing All Parts	Use instrumental demonstrations instead when possible. (Salvador, 2010; Seo, 2013)
Know Your Limits	Avoid forcing your voice to stay in a register beyond its comfortable pitch. Avoid singing too loudly. Never sing a high note that you can't sing quietly; pushing beyond your comfortable register could cause harm to your voice. (LaPine, 2008; Seo, 2013)
Seek Professional Voice Training	Voice training can help occupational voice users lower their risk of developing vocal problems. (Hackworth, 2007; LaPine, 2008; Salvador, 2010)

Improving Vocal Health Training

Although there is some research on the extended vocal use of occupational voice users (e.g., music therapists, customer service representatives, football coaches), there is

still a lack of research in comparison to other occupational health concerns. For example, in comparison to research on occupational hearing loss, the research on prevention and diagnosis strategies for vocal health disorders among occupational voice users is limited (Lehto, 2005). Whereas pre-professional vocal training is often required in educational settings for voice users who will need to use a high-quality sound in their profession (e.g., actors, singers), other occupational voice users such as teachers, military personnel, salespersons, coaches, and clergy are provided limited training, if any, and usually seek vocal training is sought through personal initiative (Lehto, 2005).

Because professionals who use their voices are at such great risk of vocal health disorders, there is a need for readily accessible strategies to improve vocal health. Several researchers have designed vocal health training programs for professionals in speaking and singing professions to study the effects of vocal training courses for occupational voice users (Lehto, 2005). Additionally, researchers have found that occupational voice users often reported being unequipped or unmotivated to address their vocal health needs independently (Helding, 2007, 2008; Lehto, 2005). To summarize, vocal health strategies are available for occupational voice users, although education about the importance of vocal health is not necessarily readily accessible (Lehto, 2005). There are repercussions if one does not use vocal health strategies, but some occupational voice users (i.e., vocal professionals) do not have the tools or personal motivation to seek out these resources (Helding, 2007, 2008; Lehto, 2005).

It may be helpful for future scholars to establish a theoretical foundation upon which to design effective and accessible vocal health training programs. The theoretical framework of the Motor Learning Theory supports other researchers' claims that vocal

problems can be difficult to self-diagnose and occupational voice users should rely on frequent expert guidance to see gradual progress in their vocal health (Helding, 2007, 2008; LaPine, 2008; Waldon, 2018). In the next section, I will discuss the Motor Learning Theory to provide a theoretical framework that supports the findings of researchers who implemented vocal training programs for speaking and singing professionals.

Motor Learning Theory

When considering improving vocal health training, Motor Learning Theory (Helding, 2007, 2008) may help professionals better understand their voices. In this context, Motor Learning Theory refers to the multi-step process of gradually learning a muscular skill (such as singing) through repetition. According to this theory, although individuals may have knowledge of what they need to train, they may not know how to train it. Repeated practice or exposure with frequent expert vocal feedback over an extended period creates relatively permanent changes in the vocal potential of the learner. According to Helding (2008), "feedback is essential to learning. There is no learning without memory, and feedback is the essential spark that ignites it" (2008, p. 423). In particular, Helding suggested that immediate feedback is essential to maintain the learner's focus, but also recognized that all types of feedback (e.g., delayed, intermittent) can be acceptable. While some professionals who use their voices may seek expert vocal training over an extended period, this guidance may not be easily accessible to all working professionals (Helding, 2007, 2008).

Vocal Health Training for Speaking Professionals

Upon searching for research on vocal health training for occupational voice users who primarily speak (rather than sing), I found research on educating call-center customer service advisors about vocal health. In Lehto's (2005) study, call-center customer service advisors participated in a vocal training program focused on vocal health. A speech-language pathologist led a two-day, two-part training course to address the vocal concerns of the call-center representatives. Part one included lectures on the theory of voice production, resonance and articulation, vocal hygiene, breathing patterns, the importance of good posture, reducing tension while speaking, and foods and drinks that can negatively impact the voice. Part two of the course was focused on teaching and practicing vocal exercises. Participants learned vocal exercises to use in the future to warm-up and cool down their voices and produce sound more economically. For example, participants learned how to relax the jaw and pharynx while producing multiple sounds (e.g., humming sounds, vowels, and nasal sounds).

The vocal training continued for participants three weeks later where they took part in a one-day speech communication seminar. The topics included principles of speech technique, demands of telephone communication, mental impressions transmitted through the voice, and appropriate verbal expressions. Six months after this course, participants took part in a refresher course that lasted one day. Five of the participants served as group leaders for the day to support group members by reviewing the theory of vocal production and vocal practices. In spite of having participated in the course six months earlier, the group leaders said they could not refresh their knowledge of vocal care and provide support for group members by leading vocal exercises since they were

not vocal professionals. Group members were responsible for maintaining proper individual vocal care because the leaders did not coordinate vocal activities as planned.

Results of Lehto's study (2005) indicated that the vocal training course significantly reduced some of the vocal health problems the customer service advisors experienced. The principles of the Motor Learning Theory relate to this study because the call-center customer service advisors participated in vocal training led by vocal experts on several occasions and saw gradual improvement in their vocal health Helding (2007, 2008). Like Lehto, researchers in other disciplines have studied the effects of vocal training programs for occupational voice users. For example, Roy et al. (2001) studied the effects of vocal training programs on 58 teachers who had voice disorders.

After finding that teachers frequently reported vocal problems and sought medical advice, Roy et al. (2001) designed a vocal hygiene and vocal function exercise training to test the effectiveness of these trainings with teachers who have current or past voice disorders. The teachers were assigned to one of three groups: (1) vocal hygiene, (2) vocal function exercises, and (3) control group. The vocal hygiene group received training on maintaining a healthy lifestyle to support the voice (e.g. staying hydrated, avoid caffeine, regularly exercise, and getting adequate sleep), reducing vocal use, and avoiding potentially harmful behaviors (e.g. yelling, singing beyond your range, clearing your throat). The second group received training in vocal function exercises which included vocal warm-ups and vocal exercises.

Participants completed a Voice Handicap Index to self-assess their vocal disorders. Results indicated that the group who received vocal function exercises reported a larger overall voice improvement in speaking and singing compared to the group that

received vocal hygiene training (Roy et al., 2001). According to the foundation of the Motor Learning Theory, learning a skill happens through repetition. The findings of this study relate to Motor Learning Theory Helding (2007, 2008) because the teachers who were taught how to implement vocal health techniques on a regular basis (vocal function exercises) saw a larger overall improvement in their voices (Roy et al., 2001).

Vocal Health Training for Singing Professionals

In addition to Roy's research on vocal health training for speaking professionals, other researchers in education have found vocal training programs to be successful for singing professionals such as music educators. Hackworth (2007) studied how the self-reported vocal behaviors of music educators were affected by practicing vocal hygiene and behavior modification. The music educators self-reported several daily behaviors for eight weeks: water consumption, warm-ups, talking over music/noise, vocal rest, nonverbal commands, and vocal problems. The first experimental group received vocal hygiene instruction, the second experimental group received vocal hygiene instruction and behavior modification information, and the last group received no training. The results suggested that the second experimental group significantly increased their vocal rest while also decreasing their reports of vocal problems (Hackworth, 2007). The music educators who received vocal hygiene and behavior modification training increased healthy vocal habits and decreased unhealthy vocal habits. According to the tenets of the Motor Learning Theory, the music educators were supported by expert vocal advice and training on how to implement a vocal health routine into their lifestyles Helding (2007, 2008).

Vocal Health of Music Therapists

Given the similarities in the vocal skills used by music educators and music therapists (i.e., daily extensive singing, talking, and vocal abuse) and noted vocal health deficits among music educators, music therapists are likely also at risk for developing vocal health problems. The American Music Therapy Association (AMTA) has Professional Competencies that all music therapy students must demonstrate before sitting for the board-certification examination for music therapists; many of these competencies require extensive vocal use. The first category in particular, "Music Foundations," has several competencies that require the use of the voice including: sight-singing (1.3), performing appropriate repertoire instrumentally/vocally (3.1), demonstrating basic foundation on voice/piano/guitar/percussion (4.1), developing original melodies vocally/instrumentally (4.2), and improvising vocally/instrumentally (4.3). To demonstrate knowledge or understanding of the other two categories, "Clinical Foundations" and "Music Therapy," music therapy students may write and/or use their voice by talking, vocalizing, or singing. Music therapists use their voices as a necessary part in demonstrating multiple competencies as identified by AMTA (2020).

Several researchers have surveyed members of national music therapy organizations to understand how music therapists use their vocal skills during music therapy sessions. In Lathom's (1982) study, the researcher surveyed 490 members of the National Association for Music Therapy (NAMT, 1950-1997). This survey revealed that 67.6% of music therapists reported using vocal skills in leading music therapy sessions. Decades later, Kern's (2017) global development survey revealed that 90.3% of respondents reported using singing and vocalization as frequently as music therapy

techniques in their sessions. The results of both studies indicate that singing and vocalization are an important part of the music therapy practice.

Results of previous research highlight the need for further research about how the frequency of vocal usage in clinical practice affects music therapists. In an attempt to address this gap in the literature, Waldon (2018) surveyed members of the American Music Therapy Association to determine the amount of voice disorders among AMTA student and professional members; 43% of respondents reported having a voice disorder at least once, 7.8% of respondents reported an existing voice disorder, 29.1% of respondents reported missing at least one day of work because of a voice issue, and 15.8% of respondents met criteria for a referral to a vocal health specialist. The music therapists who participated in Waldon's study experienced a much higher percentage (35.4%) of vocal health problems compared to the general population (4–7.6%, according to the U.S. Department of Health and Human Services, 2016).

The prevalence of vocal health problems among music therapists identified by Waldon (2018) is especially concerning since music therapists rely primarily on their voices to serve their clients (Kern, 2017; Lathom, 1982). Music therapists are likely to serve clients with unique needs and the vocal demands for music therapists may be different than others in singing professions. For example, 6.9% of music therapists work with people with hearing loss and may have to sing at an increased volume which could potentially cause vocal strain (Kern, 2017). Waldon suggested music therapists support their voices by being aware of their vocal load or the amount of time one uses their voice, staying hydrated, being aware of the risks of acid reflux and avoiding triggers, avoiding medications with dehydrating agents, and that music therapists should establish a vocal

warm-up routine. Although Waldon provided several suggestions for music therapists related to maintaining vocal health, there is a lack of research on what music therapists currently do and could do better to avoid vocal health problems.

Rationale for Present Study

There is evidence that researchers from several professions have studied vocal health and how it affects occupational voice users. Some researchers have provided vocal health suggestions for various professions, but there is a need for more research in the field of music therapy. There is discrepancy in the amount of research in music therapy compared to other related fields such as music education, which have significantly more research supporting the prevalence of vocal health problems and strategies for maintaining vocal health among their professionals. Music therapists often work with adults and older adults and the current research in music education does not provide specific strategies to support the needs of music therapists working with these populations. Waldon's (2018) research supports the need for an understanding of the facilitative and inhibiting vocal factors music therapists are experiencing. Since many music therapists have experienced vocal problems, there is a need for greater understanding of the types of vocal problems before they can be addressed.

The purpose of this study was to better understand music therapists' perceptions of their vocal health and vocal health training. Specifically, I addressed the following research questions:

(1) What vocal training did music therapists receive in their past?

(2) How do music therapists currently perceive their vocal health?

(3) What factors do music therapists cite as facilitative of desired vocal health?

(4) What factors do music therapists cite as inhibitive of desired vocal health

CHAPTER 3.

METHOD

Purpose

The purpose of this study was to better understand music therapists' perceptions of their vocal health and vocal health training. The aims were to develop a deeper understanding of vocal training music therapists have had in the past, their current perception of their vocal health, and factors that facilitate and inhibit their vocal health.

Multiple Case Study

When planning my research design, I decided that a qualitative framework would allow me to gain a deep understanding of the vocal training, vocal barriers, and motivating factors some music therapists have experienced. The research design used was a multiple case study, which is the study of one issue or phenomenon with multiple cases to illustrate the issue or phenomenon (Creswell, 2013). For this study, the phenomenon was music therapists' perceptions of their vocal health. I chose a multiple case study design in order to illustrate different perspectives on the phenomenon (Yin, 2009). Findings from case study research cannot generalize to the larger population (as in quantitative research); however, it allows for transferability to similar situations, because readers can make connections between the study and their personal experiences through the rich descriptions provided (Thomas, 2011). For this study, readers may be able to make connections from participants' perspectives to their own vocal health.

Multiple case studies add strength to data analysis as similar or alike findings in several cases are stronger than in just one case. The case study design is ideal for this research because it allows readers and researchers to develop an understanding of how

the case functions within a real-life context to answer the research questions (Yin, 2009). Case studies should have well-developed research questions in order to understand the phenomenon in each case. Descriptive research questions (i.e., asking *what?*) and explanatory questions (i.e., asking *how?* or *why?*) allow readers to view the phenomenon through several lenses (Yin, 2009). In this study I formed both descriptive and explanatory research questions. An example of a descriptive question I asked was: "What are some strategies you have used in the past that have helped with a vocal injury/vocal weakness?" An example of an explanatory question I asked was: "how would you describe your voice when it feels healthy?"

Selection Strategies

For this study, three selection strategies were used: convenience sampling (i.e., non-random, readily available), criterion sampling, and response-driven (i.e., "snowball") sampling. I recruited five participants among colleagues in Kentucky, who were among the first to respond to an email invitation. This was an example of convenience sampling because selection was nonrandom and members of the target population fulfilled specific criteria (e.g., easy accessibility, geographic proximity, availability, willingness to participate; Etikan et al., 2015). Criterion sampling was used to ensure that the participants had adequate experience working as music therapists. Snowball selection was also used to recruit five music therapists as participants. As defined by Creswell, snowball sampling assists the researcher in selecting "cases of interest from people who know people who know what cases are information rich" (2013, p. 158). I used the snowball selection strategy to create a list of potential participants, with guidance from a thesis advisor. The researcher submitted the study to the University of Kentucky

Institutional Review Board (IRB). Approval was received from the IRB in October 2019, and the study began in the same month (see Appendix A).

I received approval to conduct the study from the University of Kentucky Institutional Review Board (IRB) in October 2019, and the study began in the same month (see Appendix A). After obtaining IRB approval, I contacted 10 potential participants, all of whom were my colleagues, by email invitation. After participants expressed interest in the study through their email response, I sent them a copy of the informed consent to review before agreeing to be a participant. The first five participants to respond to the second email invitation agreeing to participate were chosen as participants. Participants responded to the email invitation between one and five days from the original send date. Each participant independently chose a pseudonym to protect their confidentiality.

Participants

All participants were board-certified music therapists (MT-BC) who had either worked in their current position for at least three years or had worked with the population they currently serve for three or more years. For this component of the study, I used criterion sampling because these criteria ensured the participants had experience working with one population of clients for several years. No participants were excluded based on gender, ethnic background, age, or health status. My thesis co-chair assisted me in drafting a list of potential participants. In this case, my co-chair knew people who were information rich and would potentially be good participants for this study. For this component of the study, I used the snowball selection strategy to identify potential participants. All participants lived in Kentucky at the time of the interviews. For this

component of the study, I used convenience sampling to identify five colleagues for interviews. See Table 1 for a description of participants.

Table 1

Description of Participants

Pseudonym	Hurley	MP	Riley	Ms. K	Robbie
Age (in years)	41	33	41	35	29
Gender Identity	Male	Male	Female	Female	Male
Race	White	White	White	White	White
Credential	MT-BC, MM	MT-BC, MM	MT-BC, MM	MT-BC, MM	MT-BC, MM
Years Board-Certified	6	5	18	6	6
Primary Instrument	Percussion	Wind	Voice	Wind	Strings
Collegiate Music Therapy Training	Equiv, Masters	Equiv, Masters	Equiv, Masters	Undergrad, Masters	Undergrad, Masters

Note. Equiv = equivalency; MT = music therapy; MT-BC = music therapist board-certified; Undergrad = undergraduate degree

Data Collection

According to Creswell (2013), data collection in case studies should include multiple forms to provide rich information. For this study, I conducted interviews, collected vocal health diaries, sent follow-up emails, and kept a researcher journal to develop a deeper understanding of the phenomenon.

Interview Protocol

Interviews help the researcher find themes and draw conclusions from the data (Creswell, 2013). In this study, I used semi-structured interviews, which are based on a clearly articulated interview guide while also providing a free-flowing structure feeling

like an informal conversation (Wildemuth, 2017; see Appendix B for interview protocol). I collected signed informed consent forms from each participant before scheduling interviews. Each participant participated in one interview which lasted an average of 30 minutes long (range 25–38 minutes).

Vocal Health Diaries

I asked participants to keep a vocal health diary for five working days to serve as supporting data in combination with interviews (Glesne, 2006). I gave participants easy-to-complete forms with opportunities for only circling/marking options and/or adding short written notes as desired (See Appendix C). The vocal health diaries were based on the General Voice Journal from Weill Cornell Medicine Sean Parker Institute for the Voice (Estes, 2019). Although the vocal health diary can track up to seven days, I only asked participants to record five working days.

Follow-up Emails

Follow-up emails included questions to participants after interviews were over. These questions clarified interview answers regarding their vocal health experiences, or questions not previously asked. The demographic questions are listed below.

If you feel comfortable, could you share:

1. An identifier you used to identify your race?
2. Your age?
3. Your gender?
4. Years board-certified?
5. Your level of education?
6. Your school location?

7. A pseudonym to ensure confidentiality, and if so, would you like to choose?

I emailed the questions to each participant within one month of their interview; participants all responded within one week of receiving the email.

Researcher Journal

I kept a journal throughout the process of reviewing literature, developing research questions, conducting interviews, and analyzing data to minimize researcher bias (Glesne, 2006). Keeping a researcher journal also enhances rigor and trustworthiness in qualitative research.

Confidentiality

Each participant chose their own pseudonym to ensure confidentiality. I kept all digital data were kept in a password protected computer, which I backed up into a secure university-affiliated Dropbox account. All physical data were kept in a folder in a secured box that was locked when not in use. Participants also had the ability to drop-out of the study at any time or not complete all parts of the study. All participants completed all parts of the study (the interview, follow-up emails, and vocal health diary). However, one participant left some questions blank on their vocal health diary.

Procedure

After obtaining informed consent from each participant, I scheduled interviews, which took place at convenient locations for participants that had sufficient privacy (e.g., a study room in a university library or a private room at a local public library). Table 2 shows the timeframe when interviews occurred. I recorded each interview using two forms of technology (voice memo on iPhone 11 and QuickTime Player on MacBook Pro)

in case of technology failure. Interviews lasted 25 to 38 minutes in length. I conducted all five participants' interviews in-person. After data was collected, I transcribed each interview within one week of the interview date.

Table 2

Interview Timeline

Pseudonym	Hurley	Ms. K	Riley	MP	Robbie
Date of interview	10/21/2019	10/21/2019	10/28/2019	11/5/2019	11/22/2019

At the conclusion of each interview, I gave the participant a vocal health diary. I explained how the diary is organized and gave examples of how to fill out some sections. After explaining the diary format, I gave every participant several minutes to read through the diary and ask questions. Some participants asked questions after reading through the vocal health diaries and some did not.

After each interview, I transcribed the interviews manually (without the use of software) for analysis. After transcribing the interviews and open coding the data, I developed some follow-up questions. I coded and organized data using Dedoose (2018), a qualitative research computer software program. After all interviews were completed, I sent each participant a follow-up email to ask emergent questions based on the interview data and to request clarification for any previous responses, as necessary.

Data Analysis

I analyzed data using Creswell's (2013) data analysis spiral, where I organized data into computer files and transcribed interviews manually. I read transcriptions several times before analyzing to get a clear picture of the data. Likewise, I read the vocal health diary prior to coding. Next, I used Dedoose, a qualitative research software program to

identify codes by breaking down data into smaller categories or subthemes. My co-chair read transcriptions and coded 40% of the data independently. After we both coded, we discussed the codes that emerged as a method of trustworthiness. Codes that emerged were sometimes in-vivo while other codes were drawn from terminology and concepts in social or health-sciences. I interpreted the data using drawings of my ideas in my researcher journal, allowing me to draw conclusions about the meanings of the data (Creswell, 2013).

Trustworthiness

Trustworthiness was achieved through triangulation of data, member checks, and using multiple forms of data (Creswell, 2013). For member checks, I sent participants a complete write-up of the discussion and analysis where they were mentioned or quoted, and participants provided feedback. One of my co-chairs, an experienced qualitative researcher, also coded data independently before we discussed the themes that arose. Additionally, I have discussed results with both of my thesis co-chairs.

Role of the Researcher

The following includes personal intent of the study and a transparent description of my role as a researcher. As a music therapist whose primary instrument is violin, I lack knowledge about the vocal mechanism and techniques to correctly use and take care of my voice. While experiencing common vocal health issues during my six-month internship at a hospital in the Southeastern region of the U.S., I began looking for additional vocal health resources. I also sought the guidance of a music therapist whose primary instrument is voice. I took part in weekly private voice lessons focused on vocal techniques and warm-ups. My interest in vocal health grew as I began discussing my

vocal health deficits with other music therapy students and music therapists. I quickly learned that others have experienced vocal health issues and have considered seeking additional vocal training but have not done so for various reasons. I recognize that my experiences with vocal health problems could be a potential bias as the researcher in this study. While conducting this study, I worked against this bias by not sharing my own experiences with participants. I also recognized that my personal bias could lead me to look for vocal health deficiencies in participants. I attempted to frame interview questions to recognize that participants may or may not have experienced vocal health problems. I have also worked against my own bias by writing my findings in a researcher journal and reviewing them frequently.

CHAPTER 4.

RESULTS AND DISCUSSION

In this section I first discuss participants' backgrounds, including their demographic information and educational experience. Next, I describe themes related to facilitative and inhibitive factors that affected the vocal health of the participants. Lastly, I synthesize how the themes inform the research questions and how they relate to the other research.

Participants' Backgrounds

Participants were five board-certified music therapists who worked their job or with the same population of clients for at least three years. At the time of the study, Riley (female, age 41) and Ms. K (female, age 35) worked in inpatient medical hospitals. Robbie (male, age 29) worked in a clinical setting, while Hurley (male, age 41) worked in private practice. MP (male, age 33) worked in a school setting. All participants lived and worked in Kentucky at the time of the study. Four of the participants were instrumentalists in college and one studied voice as their primary instrument. All participants reported taking some vocal training during their undergraduate programs. Opportunities for vocal training included participating in choir(s), vocal lessons, group voice lessons, or vocal technique classes. One participant was a vocal major in her undergraduate program and the other four studied an applied instrument. All participants said that they did not receive significant vocal training in their music therapy coursework. Riley, who studied voice in her undergraduate program, did not receive any vocal training in her music therapy program. What follows is a detailed description of each participant's background (refer to Table 1 for details pertaining to each participant).

Ms. K, Age 35, 6 Years of Clinical Experience

Ms. K grew up singing in choirs and played a wind instrument in her high school band. After high school she pursued an undergraduate degree in music therapy. In school, she took one course that focused on ear training and sight singing. Continuing her education, she earned a master's degree in music therapy. During her master's program she received no additional vocal training aside from the feedback peers and professors provided about her voice. At the time of the study, Ms. K worked for an inpatient medical hospital in Kentucky where she saw patients and supervised interns. In her free time, she enjoyed singing in her church choir. She worried that the vocal demands of her job could be detrimental to her vocal health without proper training and attention placed on her voice. Ms. K wanted to continue her vocal training by taking voice lessons once a week but did not have the funds or time to dedicate to additional help.

Riley, Age 41, 18 Years of Clinical Experience

Riley grew up singing in choirs from around age 3 or 4. In high school, she took weekly voice lessons for a year and continued to participate in church choir. She also sang in the choir at her high school where she received musical theatre training for about two years. Riley took formal voice lessons during her undergraduate degree in music education. Riley earned an undergraduate music degree with voice as her primary instrument. Shortly after, she enrolled in an equivalency/master's in music therapy program. At the time of this study, Riley worked in an inpatient medical hospital in Kentucky. Riley noted that singing is a great strength in her clinical skills, and she does not plan to pursue additional vocal training. Riley maintained her vocal skills by performing in her church choir and singing in alumni events at her alma mater. Singing

and maintaining good vocal health were extremely important to Riley, but environmental factors such as allergies and sickness are a barrier for her.

MP, Age 33, 5 Years of Clinical Experience

MP earned an undergraduate music degree with an emphasis in a wind instrument. During his undergraduate training, he participated in choir for one semester and took an aural theory course. Later, he completed a combined equivalency/master's in a music therapy program. During his music therapy coursework, he received no formal vocal training but said that the feedback he received from his music therapy professors about his voice was helpful. At the time of the study, MP worked in a school district in Kentucky and provided music therapy services to students with Individualized Education Plans. He performed in the community but did not participate in any additional vocal training since earning his master's in music therapy. He was concerned that extended vocal use would negatively impact his voice. MP sought affordable and time efficient opportunities for vocal training but had a hard time finding opportunities for music therapists at conferences and workshops.

Robbie, Age 29, 6 Years of Clinical Experience

Robbie earned an undergraduate degree in music therapy with a focus on a stringed instrument. During his undergraduate degree, Robbie participated in choir for several semesters. He did not enjoy the time commitment of choir but later was grateful for investing time for his voice. Additionally, Robbie participated in a vocal techniques class taught by a graduate student for one semester. Robbie continued his education by earning a master's in music therapy. At the time of the study, he worked at a music therapy clinic in Kentucky. He has not sought any formal vocal training; he used the

vocal techniques and warm-ups he was taught in choir to take care of his voice. Robbie said that he has seen a big improvement in his vocal skills since practicing music therapy and he desired to keep improving his voice.

Hurley, Age 41, 6 years of Clinical Experience

Hurley grew up singing with his family, in church choir, and singing in choir at his high school. Hurley stated his training before college was far from formal training but provided some structured learning about singing and using his voice. Hurley studied percussion and earned an undergraduate music degree. During his undergraduate training, he completed one group voice class and a few choir classes. He later completed a combined equivalency/master's in music therapy program. Hurley knew that his voice was his weakest aspect as a music therapy student and worked to improve his skills by asking for peer help. At the time of this study, Hurley worked in private practice. He enjoyed practicing and performing with a local band. Hurley has not continued his vocal training formally since graduating with his master's degree but used online resources as a method of self-study to maintain his voice. Hurley wished to continue training with a vocal professional but was deterred due to expenses and time commitment.

Themes Related to Facilitative and Inhibitive Factors

A total of seven themes emerged from the data (see Appendices D and E for lists and examples of themes and sub-themes related to facilitative and inhibitive factors, respectively). The themes related to inhibitive factors are lack of training, extended vocal use, the negative impact of allergies and sickness, and logistical and financial barriers (See Appendix D and E). The themes related to facilitative factors were: *feedback in music therapy training was helpful, interventions, and motivation to continue vocal*

training (see Figure 2). The themes related to inhibitive factors were: *lack of training, extended vocal use, the negative impact of allergies and sickness,* and *logistical and financial barriers* Sub-themes within the theme *interventions* were: *home remedies and medical intervention*. Subthemes within the theme *motivation to continue training* were: *job performance and security* and *personal satisfaction* (see Figure 3).

Figure 2

Themes Related to Facilitative Factors

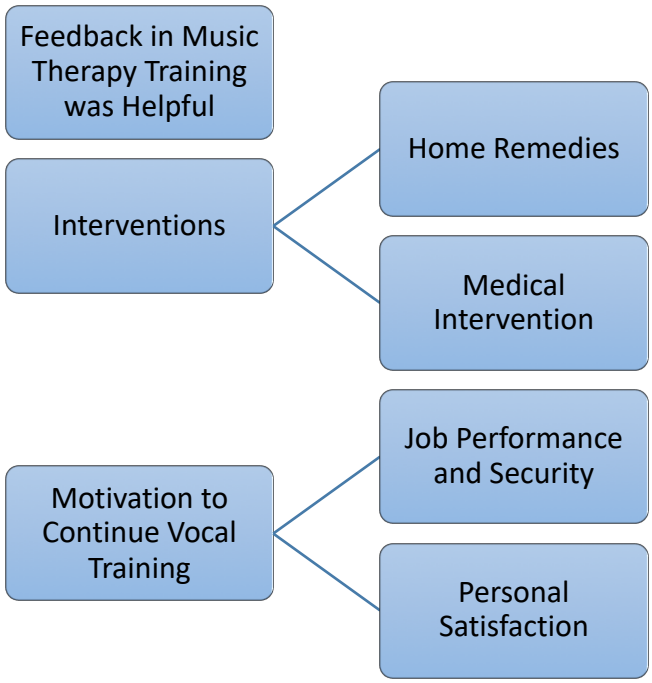
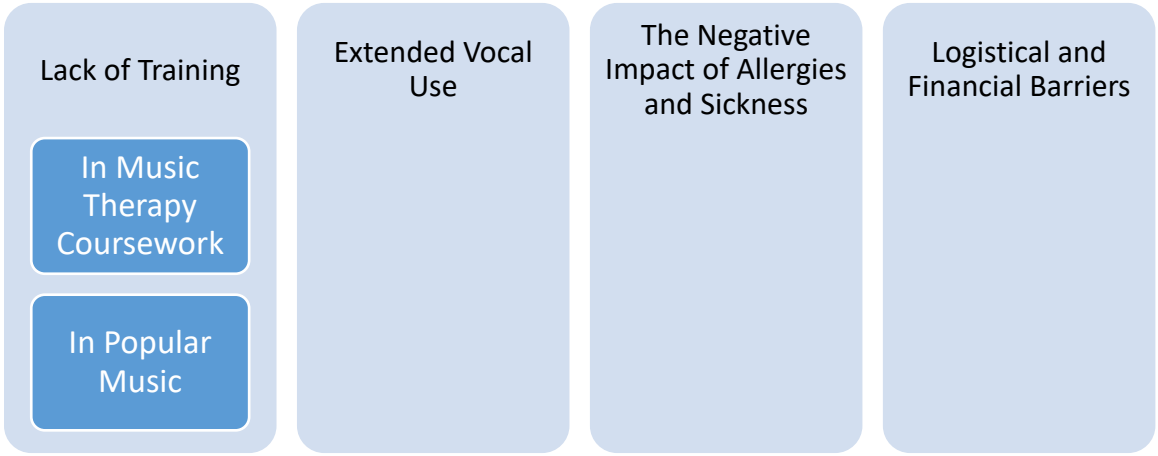


Figure 3

Themes Related to Inhibitive Factors



Feedback in Music Therapy Training Was Helpful

A theme that emerged as a facilitative factor was *feedback in music therapy training was helpful*. Most participants reported vocal feedback received from their music therapy professors was helpful. Participants noted that this feedback was some of the only (or the only) vocal training they received during their music therapy coursework. MP briefly discussed how the feedback from his professors in his music therapy training, mentioning "constructive criticism from [music therapy faculty] during labs and any public performances they had us do. That's about it." Similarly, Ms. K said:

> It was basically just singing and doing interventions during classes and things and getting feedback from either your professor or your supervisor, and then there was just a lot of just my individual learning songs and doing my own vocal work.

Hurley discussed how feedback from his music therapy professors helped him improve his vocal skills.

> Although I did not take a voice class or lessons, but the feedback and the information that I received from my music therapy professors during my music therapy training helped me improve in some areas with voice that I know I was weak...Coming in the music therapy program, I knew my voice was my weakest aspect of being a musician. So, I worked on it. The feedback from the professor has helped me kind of fine tune what I was focusing on, which would have been just some of those basic technique things that I did not really have an understanding of.

Additionally, many participants reported seeking advice from their music therapy peers and vocalists to expand their knowledge about vocal health and proper singing techniques. As Ms. K said, "I also think it was nice getting feedback from my peers and things like that during classes on your voice...it always seemed to hit home more when it was your peers vs. your professors." Similarly, Hurley stated: "I did not take anything during my equivalency coursework, but I did get some tips and some assistance from peers who were voice majors."

Interventions

One theme identified that was indicative of a facilitative factor was that of *interventions,* which included two sub-themes, *home remedies* and *medical intervention*.

Home Remedies. All participants reported strategies they have used to facilitate good vocal health. The most frequently reported facilitators of good vocal health were home-remedies. These included anything participants ingested or did at home as a strategy for improving or maintaining vocal health. Examples of home remedies most

frequently reported were vocal rest, drinking water, tea with honey or lemon, taking vitamin C, and/or gargling salt water.

Medical Intervention. Some participants reported that home remedies were not enough to achieve desired vocal health. Medical interventions included any professional medical advice/treatment, any medications participants take, or self-administered medical treatments they used. Two music therapists reported seeking advice from an Ear, Nose, and Throat (ENT) doctors. Other medical interventions included allergy pills, decongestants, and Tylenol. Riley participated in voice therapy and Hurley completed a vocal cord screening. Riley reported she was not sure vocal therapy was beneficial to her, but she was glad she tried it.

Motivation for Vocal Training

Participants' *motivation for continuing their vocal training* emerged as a theme. Motivating factors frequently included *job security* and *personal satisfaction*. These were added as sub-themes under motivation. All participants had a genuine desire to learn how to properly use and improve their vocal technique. Most participants showed concern in maintaining their vocal health with their current knowledge of vocal techniques and vocal health. Some participants were concerned that their vocal technique may compromise their job security. As Ms. K shared: "Basically, not have a career, I mean my voice gets ruined I have no job...I love my career and I don't know what else I'd do. So that's motivation." Similarly, Hurley said: "Voice is the one of those instruments that if you damage it, you don't get to go buy a new one." Additionally, participants were motivated to improve their vocal health because of personal satisfaction. Four of the music therapists said they get personal satisfaction when engaging in singing opportunities

outside of work. As MP said: “Yeah, I don’t shy away from opportunities to sing. Given the opportunity, I will sing for people. I will go to performances if they need me to sing. I will participate in those. Then as I keep saying, I just need to learn how to take care of my voice.” Similarly, Riley shared: “Satisfaction, personal satisfaction...I sing in the choir at church. There is an annual [alumni choir] that I try to participate in...It is extremely fulfilling. Because that is hands down the best choir and the best musicians I have ever known. And being part of that, I mean I get chills just thinking about it because it’s such an amazing experience.” These factors motivated participants to improve their vocal health and their knowledge of vocal techniques.

Lack of Training

Lack of training emerged as a theme from participant responses when I asked them about the vocal training they received during their university music therapy program. All participants received limited vocal training in an undergraduate program. Regardless of whether participants completed an equivalency program or undergraduate degree in music therapy, they all shared that they had limited vocal training in their university music therapy coursework. Participants completed courses on voice during their undergraduate programs, which often completely fulfilled the voice class requirements of their university music therapy equivalency programs. Therefore, only two participants were required to take an additional voice class during their music therapy coursework. Robbie and Hurley reported feeling lucky when they were students that they were not required to take another course, but now wished they had more opportunities during their music therapy program. As Hurley said:

> I did not have to take any vocal work during my equivalency; everything qualified so that I did not have to take it. I think it would have been a great thing to take lessons...which is why I tried to work with some peers who were voice majors...So not having to take a vocal lesson or a class voice, you know, something like that, although I greatly appreciate not having to have done it, my voice would have benefited from it.

Several participants shared how a lack of vocal training affected their professional practice. Largely, they had a lack of knowledge of how to take care of their voices and finding assistance. As MP stated:

> The lack of self-care was never discussed...I put in 19 hours a week of direct services which probably involves singing...since I'm someone who wasn't a vocalist undergrad, I just have no idea of that where to ask for help for my voice.

Two participants hypothesized they may have not gotten as much out of their vocal technique class because classical repertoire was the focus of their class(es). Several participants stated a need for a vocal course focused on popular music. As stated by Riley:

> I didn't get any instruction in popular singing and I think it would've made a huge difference...for me but also for my peers. I think that would've made a huge difference if we'd had a repertoire class and got instruction on stylistic singing. I think that was severely lacking in my training.

Further, most participants took a voice class taught by a Teaching Assistant and even though the TA was knowledgeable, participants perceived feedback as irrelevant. Because popular music was mentioned by most participants, it emerged as a subtheme.

Extended Vocal Usage

An emergent theme that the music therapists cited as inhibitive to their vocal health was *extended vocal use*. All participants reported heavy vocal usage as a factor that inhibited their vocal health. These music therapists used their voices professionally with clients or patients and with their families, friends, and other commitments. Hurley stated:

> I'm using my voice to have conversations with clients and with other, you know, staff members. I'm also using my voice with phone calls, working with new clients, and doing presentations... I go right from client to client to client to client, to teaching, and that makes for a long day of vocal use.

In the vocal health diaries, participants kept track of how many hours they used their voices in various ways and their perceived vocal quality, effort, and feeling. Participants reported using their voices for three to nine hours a day by singing, in conversational talking, and occasionally in loud talking. On average, the female participants reported a higher vocal effort (i.e., amount of work to use the voice) than the male participants. Participant responses were averaged for ease of comparison (see Table 3).

Table 3

Data from Vocal Health Diaries: Means and Standard Deviations

	Hurley	MP	Riley	Ms. K	Robbie
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Hours spent singing per day	2.4 (1.35)	0.75 (0.31)	2.0 (0.89)	3.2[a] (1.46)	1.5 (0.63)
Hours spent conversational talking	6.4 (0.8)	2.9 (2.29)	5.9 (1.15)	3.4 (1.0)	4.6 (0.95)

Hours spent loud, talking over noise	0.8 (0.4)	---[b]	0.0 (0.0)	1.2 (0.4)	0.2 (0.4)
Vocal quality 1-10 (worst-best)	9.6 (1.09)	7.6 (1.6)	7.9 (0.74)	5.4 (2.0)	7.2 (1.46)
Vocal effort 1-10 (least-most)	2.0 (3.32)	5.2 (1.74)	2.4 (0.48)	5.6 (2.13)	4.2 (2.41)
Overall feeling 1-10 (worst-best)	9.6 (1.85)	6.6 (1.72)	7.8 (2.24)	5.0 (1.35)	6.2 (1.72)

[a]Missed one workday due to sickness. [b]Not reported.

When asked about how extended vocal use affected these music therapists, the majority reported extended vocal use was inhibitive of their desired vocal health. Several stated that their extended vocal use during work put limitations on outside vocal usage. For example, singing in outside ensembles or bands was an experience that participants frequently reported enjoying, but some participants were concerned they may not be able to continue using their voices for these types of leisure activities. Recognition of vocal limitations can lead to disappointment and anxiety, especially when these professionals have always enjoyed using their voices for leisurely pursuits. Ms. K stated;

> Music has always been an outlet for stress, and I think worrying about my voice I don't utilize music as a stress outlet anymore...I'm providing for someone else's needs and it's something that I enjoy. I can't necessarily provide for my own needs because I am worried.

Environmental Barriers

A theme that emerged as an inhibitive factor was *environmental barriers*. Most participants reported having vocal health issues directly related to environmental barriers such as sicknesses and allergies. All five participants lived in Kentucky at the time of the study. As MP said: "I get sick almost every year when around flu season...I do all the things to prevent it...I still get sick every year. Allergies, I'm actually fighting them right now."

Some participants reported altering their normal workday routine in order to work while experiencing sickness and/or allergies. For example, Ms. K mentioned that she frequently transposes her music down when she experiences symptoms of allergies or sickness as her range "shrinks" during these times. Similarly, Riley said "Environmental factors make singing discouraging." According to Riley, allergies had a significant negative impact on her singing. The female participants reported allergies and sickness caused them to miss several days of work a year while the male participants reported being able to "work through it" more frequently. The female participants worked in a fast-paced work setting, a large hospital in Kentucky. They also supervised interns daily. They reported using their voices more at work compared to the male participants, on average. Related to their voices, Ms. K recalled having to take about three sick days a year while Riley reported taking an average of one week off a year due to sickness and allergies. Riley estimated taking about one less day off than the national average. Dissimilarly, the male music therapists reported not taking any sick days on average because of their vocal health. As Robbie paraphrased: "I have pretty regular seasonal allergies that can be pretty rough, but not rough enough to where I can't work through it."

Similarly, MP stated, “I haven’t come across an instance where my voice couldn’t handle the amount of clients, I am seeing a week.”

Logistical and Financial Barriers

One theme that presented as an inhibitive factor was *logistical and financial barriers*. Three out of five participants reported logistical and financial barriers to optimal vocal health. They either had difficulty accessing training or did not have the money to continue training. For example, Hurley recalled: “It’s tough because you’ve got to juggle the financial impact of taking a lesson and the scheduling...managing work and life outside of work.” Similarly, Robbie said: “If I had an extra hour a week and the funds to do it, I would love to take a private lesson.” Ms. K said that time and money were factors to why she had not sought professional vocal help:

> Just finding the time I also don’t necessarily have the income right now to pay for private lessons...so it’s either money or it’s time-intensive or both. Even if you have private lessons, you have to practice for lessons, you can’t just show up for your lesson and expect I’m going to do better just because I am showing up for my lesson once a month. How do I have a work life balance? It’s really just time, money, and burnout for me.

A few participants said that access to vocal training as a professional was a barrier as they sought help with their voices. MP recalled looking for vocal health professional development opportunities in the field of music therapy unsuccessfully. As MP said: “I’ve just not seen it offered before at the different conferences I’ve been to, classes I took at [university]...I just haven’t seen anything about it being offered.” Similarly, Robbie and Ms. K stated “access” as a barrier for not seeking additional vocal training.

Interpretation and Discussion

Music therapists reported that the feedback they received about their voices during their music therapy training was helpful, but a major theme in the qualitative analysis revealed that they had a lack of vocal training during their music therapy coursework. Factors that contributed to a reported lack of vocal training included participants already having taken vocal requirements in an earlier collegiate program or limited offerings of vocal technique courses at their university.

Music therapists spoke of extended vocal use, allergies and sickness, and logistical and financial barriers as inhibitors of their desired vocal health. Whether using their voice in their job or in leisure, participants were mindful of any vocal problems, but allergies and sicknesses make their vocal problems worse in combination with extended vocal use. Logistical and financial barriers were a major theme that emerged when music therapists discussed what inhibited them from continuing their vocal training. Many of the music therapists stated a desire to take private voice lessons once a week but did not have the time or money to participate. Because the music therapists were aware of their vocal problems, they spoke with genuine concern of their well-being as it related to their voices.

All participants said they used home remedies for vocal health, including vocal rest, drinking water, tea with honey or lemon, taking vitamin C, and/or gargling salt water. For most participants, they also used medical interventions to help address their vocal health problems: seeking professional medical advice/treatment, taking medications, or self-administering medical treatments. Finally, most participants stated a

clear motivation for vocal training: job security and personal satisfaction when providing care for the clients they serve.

Answers to Research Questions

The purpose of this study was to better understand music therapists' perceptions of their vocal health and vocal health training. In this section, I will answer each research question in light of the reported themes and discuss how these findings relate to other research.

Research Question 1. What vocal training did music therapists receive in their past?

Participants reported receiving limited vocal training in their collegiate music therapy programs. Most participants in this study were interested in continuing their vocal health training in ways that were accessible to their lifestyle (e.g., affordable, flexible times). Several participants said they had sought out continuing education opportunities in the past but struggled to find vocal training programs that were accessible.

In the present study, I asked participants where they received vocal health training and they reported a lack of vocal training in their collegiate music therapy programs and as a professional. The American Music Therapy Association (AMTA) has over 80 approved University programs, and while AMTA does not have mandated course offerings and requirements, AMTA does have an extensive list of competencies students must demonstrate before sitting for the board certification exam for music therapists. It is possible that participants met all the vocal competencies in music foundations

coursework and therefore were not required to receive any additional vocal training during their university music therapy program (AMTA, 2020).

As was the case in Waldon's study (2018), the participants in the present study reported having some vocal training at some point. It is likely that participants learned several strategies during their university music therapy training. Also, participants may have learned these strategies through trial-and-error, from their colleagues, or from an outside resource. In Waldon's study (2018), 39% of the music therapists reported that vocal health training was included or required in their collegiate music therapy program. Waldon offered several suggestions, including "reexamining the AMTA Professional Competencies and having academic programs review curricula and take considerable note of the extent to which vocal health is addressed for all developing and entry level clinicians" (Waldon, 2018, p. 40). The findings in this study provide rich perspective regarding Waldon's suggestions because the music therapists reported an overall lack of vocal training in their collegiate music therapy programs and did not report participating in vocal training as professionals.

Perhaps if there were standardized vocal training programs available for music therapists, more music therapists would continue their vocal training. There is a lack of standardized vocal training programs in the field of music education as well as music therapy. The fact that the primary and secondary teachers (Roy et al., 2001) and music educators (Hackworth, 2007) reported significant improvements in their voices and reported decreased vocal problems after participating in vocal training programs as continuing education provides support for the development of similar continuing education opportunities for music therapists.

Most participants reported that the content of their vocal technique classes (e.g., an emphasis on classical repertoire) did not always transfer well to music therapy. The disconnect between their vocal class and music therapy coursework could potentially be because the instructors were Teaching Assistants who may have been vocal performance graduate students rather than music therapists. Several participants said that their vocal techniques class did not include curriculum on popular music, and they felt unprepared to sing this genre of music in a clinical setting. Perhaps participants would have found the vocal courses they took more helpful if popular music singing styles were explored. Singing in different genres to provide client preferred music can be vocally demanding, especially when music therapists experience extended vocal use. Since I could find no research on vocal training in popular music styles for music therapy students or professionals, there appears to be room for further research in this area.

Research Question 2. How do music therapists currently perceive their vocal health?

The music therapists all seemed to offer candid descriptions of their voices and vocal health and most expressed concerns about the future of their vocal health. The finding that all participants had experienced extended vocal use aligns with previous research indicating that music therapists are at risk for developing vocal health problems due to vocal overuse (Baker & Cohen, 2017; Waldon, 2018). Unlike in previous studies, I asked music therapists about both singing and speaking. In the vocal health diaries, all participants reported talking for an average five hours per day, which was more time than they spent singing. This finding is likely due to several circumstances. Outside of work, participants reported engaging verbally with family and friends. As was the case in

previous research (Kern 2017; Lathom, 1982) music therapists in this study spent a considerable amount of time singing. On average, music therapists in the present study reported singing for about two hours a day, which is 25% of a typical workday. During the workday, music therapists' jobs involved singing and talking to clients, staff, family members, and interns. Due to the experience level of these professionals, all of them supervised interns in the past or currently supervise interns. It is possible that these interactions with interns add more speaking time to their day and potentially reduce the number of hours they sing per day on average. Future researchers should look at whether supervising students impacts vocal health of music therapists.

In addition to singing frequently at work, all participants said they like to sing outside of work in various settings (i.e., bands, choirs, solo gigs). Most perceived their vocal health as good enough to participate in these leisure vocal opportunities, although Ms. K worried that the vocal demands of her job might make it difficult to continue to participate in a church choir and is an important implication for self-care. To the best of my knowledge, this is the first study in which music therapists have shared concerns about vocal demands impacting not only their work but also their leisure opportunities. There is a need for more research in this area.

In the vocal health diaries, music therapists recorded their perceived vocal quality, vocal effort, and overall feeling for five workdays. Results from vocal health diaries indicated that participants differed in their unique perceptions of their overall vocal quality, vocal effort, and overall feeling. For example, Hurley, who spent on average 9.6 hours, (the longest amount of time using his voice each day) reported the highest perceived vocal quality. On the other hand, MP, who spent on average the shortest

amount of time using his voice each day, 3.6 hours, reported a perceived vocal quality of two points lower. This finding suggests a need for more research on the potential relationship between the amount of time one spends singing and perceived vocal quality.

Research Question 3. What factors do music therapists cite as facilitative of desired vocal health?

Most participants provided strategies they use to protect or treat their voices after experiencing extended vocal use. The music therapists commonly said they used home remedies to achieve desired vocal health. Commonly recommended home remedies included warm beverages, honey and tea, and vocal rest. Some music therapists needed to also use medical interventions for the health of their voices in order to do their jobs. Examples of medical interventions are medications such as allergy pills, decongestants, and Tylenol. Waldon (2018) recommended that music therapists be cautious of the ingredients in the medications they take because several medications have shown to have a drying effect on the voice (e.g., antihistamines) (Waldon, 2018). None of the participants in the present study mentioned the ingredients of medications or brands of medications they had taken other than Tylenol. Further research is needed to study the medications music therapists take and how they affect their voices. Participants reported being motivated to protect their voices but sometimes used home remedies and medical interventions to treat vocal problems rather than address any gaps in their knowledge about vocal health through training or workshops.

Participants' internal and external motivation to continue vocal training is facilitative of their vocal health. Primarily, participants desired to maintain optimal vocal health so they can continue providing quality services to their clients. Secondary

motivators were job security and social vocal use. All participants who were instrumentalists stated a desire to continue their vocal training in order to be the best clinician they can be. In contrast to the research of Buckley et al. (2015) and Lehto (2005) where the professional football coaches and call center representatives paid little attention to their voices, music therapists seemed aware of their vocal strengths and deficits. According to the tenets of Motor Learning Theory, although the music therapists were aware of and knew what they needed to train in their voices, this does not necessarily mean they know how to learn on their own. The Motor Learning Theory would suggest that the music therapists seek frequent expert advice; however, no participants in the present study mentioned having received advice and direct supervision from experts in vocal health since they completed their master's degree (Helding, 2008).

The music therapists who participated in this study were concerned with their vocal health because their jobs were motivating to them. Most of the music therapists had not participated in additional vocal training since becoming board-certified, but most of the participants reported several strategies for facilitating a healthy voice including vocal strategies for when they experience environmental barriers. Most participants stated interest in pursuing further vocal training, believing it would be facilitative of their desired vocal health. However, there were several barriers that hindered the music therapists from participating in further vocal training, as I will elaborate on in the next section.

Research Question 4. What factors do music therapists cite as inhibitive of desired vocal health?

Allergies and sickness had a negative impact on music therapists. They also faced financial and logistical barriers to getting the vocal training they need. According to AMTA (2020), in 2019 music therapists in Kentucky made an average of $50,474 per year, which is important to note when considering financial barriers. Kentucky is located in the southeastern region of AMTA, where average salaries for music therapists are less than in most other regions of the United States.

Participants overwhelmingly cited environmental barriers as inhibitors of their desired vocal health. The environmental barriers were obtrusive in the lives of these music therapists, affecting their personal and work lives and putting limits on the amount they could use their voices. All participants lived in Kentucky and were likely exposed to similar environmental barriers. The two female participants reported taking more days off work on average than male participants due to sickness and allergies. It is possible that female participants were exposed to more virus and bacteria because they worked in an inpatient medical hospital in Kentucky. The music therapists reported their voices and overall health being negatively affected by allergies.

According to the Asthma and Allergy Foundation of America (2020), there are 50 million Americans living with nasal allergies, half of which are caused by seasonal allergies. In 2020, AAFA studied large metropolitan cities across America looking for pollen counts, the prevalence of residents using allergy medications, and the number of board-certified allergists in the area. The organization then ranked the top 100 most challenging places to live with seasonal allergies or the "2020 Allergy Capitals." Louisville, Kentucky (the only large metropolitan city in Kentucky) ranked 22nd out of 100 with a total score of 75.29 out of 100, which was 9.79 points higher than the national

average score of 65.50 (higher scores indicate that living with seasonal allergies is more challenging in a particular area). It is likely that the music therapists were affected by allergies because of the increased difficulty of living in a state with higher than average allergy prevalence. Similarly, (Waldon, 2018) reported that 84.12% of the AMTA respondents reported one or more vocal health risk factors, largely allergies (66.5%). The present study supports Waldon's suggestion that allergies are a major vocal health risk factor for music therapists.

Whereas all participants were affected by allergies, the two music therapists who worked in the inpatient hospital setting missed work each year due to their allergies, inhibiting the use of their voices. The music therapists in the inpatient hospital setting said they received paid sick days, but the three music therapists who worked in other settings (e.g., private practice, schools, clinics) did not receive paid time off. The financial burden or logistical burden of taking a sick day when working in private practice, schools, or clinics could have contributed to the music therapists "working through" their sicknesses. Conversely, the music therapists who worked in hospitals were still compensated when taking sick days and did not have to make up missed sessions at other non-work times. Future researchers might investigate whether the setting where one works and policies related to sick leave might impact one's vocal health.

Logistical and financial barriers also made it difficult for the music therapists to seek vocal training as a professional. The music therapists had busy work schedules and family obligations that limited their time and financial flexibility. Some music therapists said that the lack of access to professional development opportunities focused on the voice kept them from furthering their vocal training. Some of these music therapists

sought opportunities to further their training but did not find opportunities that were accessible to them. Most participants desired additional vocal training but could not find affordable offerings that worked with their busy schedules. Perhaps more music therapists would participate in professional development related to vocal health if there were more offerings at music therapy conferences, in-person and online workshops, and continuing music therapy education (CMTE) classes. At the 2019 national music therapy conference, there were no CMTE course offerings related to vocal health (AMTA, 2020). There helps illustrate the need for more accessible vocal health opportunities for music therapists. In Lehto's (2005) study of call-center representatives and a vocal training course, the participants reported a decrease in hoarseness and vocal strain both five weeks and one-and-a-half years after the study. Perhaps if there was a similar vocal training course for music therapists, they may experience a decrease of certain symptoms.

Summary of Research Findings

In conclusion, music therapists reported that the feedback they received about their voices during their music therapy training was helpful, but a major theme in the qualitative analysis revealed that they had a lack of vocal training during their music therapy coursework. Contributing factors to the reported lack of training were that participants already had taken vocal requirements in an earlier collegiate program or there were limited offerings of vocal technique courses at their universities. In terms of their current vocal health, music therapists reported extended vocal use, allergies and sickness, and logistical and financial barriers as inhibitors of their desired vocal health.

Largely, music therapists said they use their voice a lot in their job and in leisure and are mindful of their vocal problems, but allergies and sicknesses make their vocal

problems worse in combination with extended vocal use. Logistical and financial barriers was a major theme that emerged when music therapists discussed what inhibits them from continuing their vocal training as a working professional. Many of the music therapists stated a desire to take private voice lessons once a week but did not have the time or money to participate.

Because the music therapists were aware of their vocal problems, they spoke with genuine concern of their well-being as it related to their voices. All the therapists said they use home remedies like vocal rest, drinking water, tea with honey or lemon, taking vitamin C, and/or gargling salt water. For most participants, they also used medical interventions to help address their vocal health problems. Some of the most frequently reported medical interventions were seeking professional medical advice/treatment, taking medications, or self-administered medical treatments. Lastly, the music therapists stated a clear motivation for vocal training. While not all therapists reported having the same motivators to gain additional vocal training, some commonly reported were job security and care and concern for the populations in which they serve. These results indicate that music therapists may benefit from more vocal training or professional development opportunities related to their voices.

Strengths and Limitations

Of the five participants in the present study, only two received their entry-leve; music therapy training at the same school. There were two participants that participated in undergraduate music therapy programs and three participated in equivalency music therapy programs. Educational diversity is a strength of this study because these participants' experiences were unique to their university program. Additionally, the

gender representation was fairly balanced with three participants identified as male and two identified as female. The trustworthiness of the study was a strength because there were multiple sources of data, member checks with participants, and coding assistance from an expert in qualitative research. The music therapists participated in a semi-structured interview, completed a vocal health diary, and engaged in follow-up emails, which provided multiple sources of data.

Limitations of the present study related to the location and experience of the participants. All participants lived and worked in the state of Kentucky at the time of the study. Ideally, participants would have been from various parts of the country to provide a broader scope of the experiences of music therapists working in the United States. Additionally, four out of five participants identified themselves as instrumentalists. The four instrumentalists reported experiencing more vocal health problems and barriers than Riley, who identified as a vocalist. The data may have been richer if one or two more of the participants identified as vocalists. Another limitation is the fact that although participants participated in member checks, they were not given a copy of the entire transcript to verify prior to data analysis. The personal collegial relationship between participants and myself may have influenced answers in some way. The fact that all participants were White, lived in Kentucky, and had master's degrees means that future research is needed with a more diverse sample.

Implications and Future Research

Implications for Education and Clinical Practice. Each music therapist must hold a bachelor's degree or higher in music therapy from one of the over 80 American Music Therapy Association (AMTA) approved university programs. The music therapy

curriculum focuses on musical foundations, clinical foundations, and music therapy foundations. The musical foundations include proficiencies in guitar, piano, percussion, and singing. Although several musical competencies must be addressed, the educational time between skills must be split. Because there are many different focuses within the music therapy curriculum, music therapists and students could benefit if vocal health resources are made available to all music therapists and music therapy students seeking additional vocal health education (AMTA, 2020).

Educators in music therapy should be aware of the amount of vocal training students receive. Reaching out to former students to ask what kind of collegiate training was helpful now that they are professionals might be helpful to educators in their future course planning consideration. Since all of the participants in this study stated a desire for additional vocal training popular music, educators might consider the amount of time singing in popular music styles is included in their music therapy programs. Clinicians might consider using some of the strategies that other professionals use to protect their vocal health. Because the Motor Learning Theory supports expert coaching as a way to learn new skills, clinicians and educators who have strong backgrounds in voice might consider providing mentoring, peer supervision, coaching, or presenting continuing education workshops on vocal health.

Suggestions for Future Research. Because participants reported receiving limited training from the university AMTA approved program, the responsibility for providing music therapists with vocal techniques may fall partly to employers or people offering continuing education. Future researchers should investigate the effectiveness of vocal health techniques taught to music therapy students in singing popular music and

varied musical styles. Future investigators might examine the benefit of supplemental information about vocal techniques and whether it helps music therapists protect their voices (LaPine, 2008; Lehto, 2005). Future researchers might also consider studying how collegiate music therapy programs allocate time to each musical competency.

The music therapists in this study reported that the feedback they received during their music therapy training was helpful, but as professionals they struggled to find vocal health workshops and resources that are accessible to them. Previous researchers have found that vocal training programs, particularly those that focus on vocal hygiene and behavior modification (Hackworth, 2007), can improve healthy vocal habits and decrease vocal problems. Hackworth's findings suggest that additional research on vocal training for music therapists should include efforts to help participants continue to practice vocal exercises after the study periods.

Waldon (2018) asked participants to complete a three-part questionnaire which included prompts about participants' background and training, current voice use, and the Voice Handicap Index. As in Waldon's (2018) study, a standardized self-report measure was used; however, unlike in Waldon's study, the music therapists in this study completed the General Voice Journal from Weill Cornell Medicine Sean Parker Institute for the voice (Estes, 2019). Future researchers might consider using both the General Voice Journal and Voice Handicap Index for richer data.

Music therapists who experience fewer vocal health problems will likely be less susceptible to burn out or having to leave the profession due to vocal injury. As music therapy is already a small field with fewer than 100 practicing therapists in the state of Kentucky, we must do everything possible to support these professionals. Providing

music therapists with workshops/classes/learning opportunities to address vocal health would be an opportunity to further education, potentially earn CMTE credits in Kentucky, and promote vocal health and awareness (Lehto, 2005). Most of the music therapists in this study stated a desire to continue their vocal training and we must find a way to make vocal training a priority for music therapists.

Conclusion

In conclusion, music therapists reported that they believe vocal training and vocal health are important things to consider, but a major theme in qualitative analysis revealed that several factors inhibit them from achieving their optimal vocal health. These results indicate that music therapists may benefit from more vocal training or professional development opportunities related to their voices. These music therapists were motivated by several factors to improve their vocal health and most of the music therapists reported devoting time to warming up their voices and practicing some vocal rest each day. Ultimately, most of the music therapists reported that they had not sought any formal vocal training after becoming board-certified but were concerned of the long-term effects of vocal abuse and misuse. These results indicate that while most of the music therapists knew they needed to seek additional vocal training; the inhibitors held them back from moving forward. Music therapists would benefit from additional vocal training opportunities, research of the effectiveness of vocal training programs, and guidelines for overcoming vocal barriers and addressing healthy vocal use in music therapy practice.

APPENDICES

APPENDIX A: IRB APPROVAL

University of Kentucky | Office of Research Integrity
IRB, RDRC

XP Initial Review

Approval Ends:
10/14/2020

IRB Number:
49707

TO: Emily Rush,

Fine Arts - Music

PI phone #:

PI email: emily.rush1@uky.edu

FROM: Chairperson/Vice Chairperson

Nonmedical Institutional Review Board (IRB)

SUBJECT: Approval of Protocol
DATE: 10/16/2019

On 10/15/2019, the Nonmedical Institutional Review Board approved your protocol entitled

A Multiple Instrumental Case Study of Music Therapists Perception of Vocal Health Issues

Approval is effective from 10/15/2019 until 10/14/2020 and extends to any consent/assent form, cover letter, and/or phone script. If applicable, the IRB approved consent/assent document(s) to be used when enrolling subjects can be found in the "All Attachments" menu item of your E-IRB application. [Note, subjects can only be enrolled using consent/assent forms which have a valid "IRB Approval" stamp unless special waiver has been obtained from the IRB.] Prior to the end of this period, you will be sent a Continuation Review(CR)/Administrative Annual Review (AAR) request which must be completed and submitted to the Office of Research Integrity so that the protocol can be reviewed and approved for the next period.

In implementing the research activities, you are responsible for complying with IRB decisions, conditions and requirements. The research procedures should be implemented as approved inthe IRB protocol. It is the principal investigator's responsibility to ensure any changes planned for the research are submitted for review and approval by the IRB prior to implementation. Protocol changes made without prior IRB approval to eliminate apparent hazards to the subject(s) should be reported in writing immediately to the IRB. Furthermore, discontinuing a study or completion of a study is considered a change in the protocol's status and therefore the IRB should be promptly notified in writing.

For information describing investigator responsibilities after obtaining IRB approval, download and read the document "PI Guidance to Responsibilities, Qualifications, Records and Documentation of Human Subjects Research" available in the online Office of Research Integrity's IRB Survival Handbook. Additional information regarding IRB review, federal regulations, and institutional policies may be found through ORI's web site. If you have questions, need additional information, or would like a paper copy of the above mentioned document, contact the Office of Research Integrity at 859-257-9428.

APPENDIX B. INTERVIEW PROTOCOL

Semi-Structured Interview Questions

1. Please describe any vocal training prior to beginning your undergraduate or equivalency coursework.
2. Please describe any vocal training during your undergraduate or equivalency coursework.
3. What were the strengths of the vocal training you received during your MT training?
4. What were the weaknesses of the vocal training you received during your MT training?
5. Please describe additional vocal training that you have not already discussed, if any.
6. In what ways, if any, have you continued your vocal training since becoming a board-certified music therapist?
7. Please describe the factors that help you continue vocal training as a working MT-BC.
8. Please describe the factors that make it harder for you to continue vocal training as a working MT-BC.
9. In what ways would you like to continue your vocal training?
10. In what ways do you use your voice throughout the day as a MT-BC?
11. How would you describe your voice when it feels healthy?
12. How would you describe your voice when it feels unhealthy?
13. What are some strategies you have used in the past that have helped with a vocal injury/vocal weakness?
14. Please describe or demonstrate any vocal warm-ups you have used in the past you have found helpful to your vocal health.
15. In what ways if any has your vocal usage changed to accommodate your vocal health needs as a practicing therapist?
16. Is there anything else you would like to talk about in regard to vocal health or using your voice as a MT-BC?

Possible probes to be used as follow-up questions:

- Tell me more.
- Please elaborate on that last point.
- Please clarify what you mean by…

VOICE JOURNAL – Week of _____

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
VOCAL HYGIENE							
hours of sleep							
glasses of water (goal 8-10)							
dehydrating factors or reflux irritants							
throat clearing, coughing (tally)							
HOURS OF VOICE USE							
voice rest/ silence							
conversational talking							
loud talking, talking over noise							
singing							
VOICE THERAPY GOALS (Check if you feel you completed)							
Completed exercises							
Thought about voice use							
HOW DID YOUR VOICE FEEL/SOUND TODAY? (X to indicate)							
voice quality	worst best	worst best	worst best	worst best	worst best	worst best	worst best
vocal effort	least most	least most	least most	least most	least most	least most	least most
overall feeling	worst best	worst best	worst best	worst best	worst best	worst best	worst best
specific details							
OTHER OBSERVATIONS OR NOTES							

APPENDIX D. FACILITIATIVE FACTORS

Facilitative Factors

Theme	Subtheme	Participants	Examples
Feedback in Music Therapy Training was Helpful	N/A	MP	"Constructive criticism from [music therapy professors] during labs and any public performances they had us do. That's about it."
		Ms. K	"It was basically just singing and doing interventions during classes and things and getting feedback from either your professor or your supervisor, and then there was just a lot of just my individual learning songs and doing my own vocal work." "I also think it was nice getting feedback from my peers and things like that during classes on your voice...it always seemed to hit home more when it was your peers vs. your professors."
		Hurley	"I did not take anything during my equivalency coursework, but I did get some tips and some assistance from peers who were voice majors." "Although I did not take a voice class or lessons, but the feedback and the information that I received from my music therapy professors during my music therapy training helped me improve in some areas with voice that I know I was weak." "Coming in the music therapy program, I knew my voice was my weakest aspect of being a musician. So, I worked on it. The feedback from the professor has helped me kind of fine tune what I was focusing on, which would have been just some of those basic technique things that I did not really have an understanding of."
Interventions	Home Remedies	Ms. K	"Tea with honey and lemon, Vitamin C, gurgling salt water...not whispering...chamomile tea...cough drops."
		Robbie	"I put hot water and a drop of peppermint essential oil and like puffed that. I thought I was going to pass out it was so intense...yeah it really works it was like one drop."
		Riley	"What I do more often on my own is tea with honey or lemon or hot water or lemon, honey, combination...I can flush my nose out and when I can flush out my sinuses it makes a tremendous impact on my voice. So, I'll do that for up to five times a day if it's really bad...Cough drops, I usually take cough drops with me when I'm singing because you get a little tickle and you clear your throat and that's fine, but when you're in the presence of people with a compromised immune system, coughing is not an option sometimes. Or not a good option...I try to drink more water that's probably it."

Theme	Subtheme	Participants	Examples
		MP	"Just drinking plenty of fluids, mainly water. Just not overusing my voice."
		Hurley	"Rest...That really is the biggest one. Rest followed by proper hydration."
	Medical Intervention	Ms. K	"If it's an allergy thing, decongestants, it it's an asthma thing my inhaler. If it's a combination, then all of that." Interview. "Cough meds, antibiotics, respiratory infection, and congestion." Voice Diary.
		Robbie	"I don't take Claritin every day, but I will take it every day for a month or two months or whatever it is."
		Riley	"I went to an ENT, and then voice therapy."
		Hurley	"I went to the ENT and we scoped my vocal cords...I felt like I was maybe hoarse all the time and I was definitely noticing my voice was getting kind of worn out quicker, probably related back to me not doing something that I was supposed to be doing...I wanted to find out what do they look like? And to have an idea, kind of at least a baseline idea of the health of my vocal cords."
Motivation to Continue Vocal Training	Job Performance and security	Ms. K	"Not wanting to basically not have a career, I mean, my voice gets ruined I have no job, and I absolutely want to have an income, but I want to have a job. I love my career and I don't know what else I'd do, so that's motivation to continue to figure out ways to better train the voice."
		Robbie	"If I had an extra hour a week and the funds to do it, I would love to take a private lesson...I definitely think I could improve even more with more intentionality."
		Riley	"Use it or lose it."
		MP	"For me it's probably the lack of knowledge of how to take care of my voice. Considered that I've never taken a class, I'm not classically trained as a vocalist. I don't know any factors of how to take care of my voice in all seriousness, I just don't. It probably would be good if I did know something because I know as I might get older, it's going to be something I'm going to really need to pay attention to."
		Hurley	"I think we would all benefit from additional, especially focus, additional focus training as it relates to our voice because we are professional voice users and we both speak and sing hours a day every day. And we need to make sure that we are properly taking care of our voice to ensure that we're able to do this for the long haul."

Theme	Subtheme	Participants	Examples
	Personal Satisfaction	MP	"Yeah, I don't shy away from opportunities to sing...Given the opportunity, I will sing for people. I will go to performances if they need me to sing. I will participate in those. Then as I keep saying I just need to learn how to take care of my voice. I have no idea what to do about that."
		Riley	"Satisfaction, personal satisfaction...I sing in the choir at church. There is an annual * alumni choir that I try to participate in...It is extremely fulfilling. Because that is hands down the best choir and the best musicians I have ever known. And being part of that, I mean I get chills just thinking about it because it's such an amazing experience."
		Robbie	"I've got more serious about it (vocal health). I haven't had any major incidences or anything but kind of realizing that a lot of people have, just trying to steward that and not take it for granted. Especially not as a vocal primary, realizing that I could be at a higher risk for using things incorrectly."
		Ms. K	"Actually learning how to do some vocal exercises. I learned more vocal exercises recently at my church choir...I was able to use vocal warmups and see how those work and that was helpful."
		Hurley	"Two to three days a week I have some form of rehearsal that I participate in. And that oftentimes includes me singing. So, you know, it gets used. The voice gets used."

APPENDIX E. INHIBITIVE FACTORS

Inhibitive Factors

Themes	Subthemes	Participants	Examples
Lack of training	In music therapy coursework	Hurley	"I did not have to take any vocal work during my equivalency; everything qualified so that I did not have to take it. I think it would have been a great thing to take lessons...which is why I tried to work with some peers who were voice majors...So not having to take a vocal lesson or a class voice, you know, something like that, although I greatly appreciate not having to have done it, my voice would have benefitted from it."
		Riley	"I just sang in choir that's it...I didn't receive any vocal training during my music therapy career because I was a voice major."
		MP	"Part of the guitar class and the last half of the semester we talked about the piano and voice. So maybe half a semester in one class."
		Robbie	"Graduate coursework at * I had no extra training in voice. There were elements of what I was doing in my classwork was talking about using your voice in music therapy and things like that. But there was no specific voice methods."
		Ms. K	"I had ear training and singing in undergrad...but there was no structured vocal class."
	In Popular Music	MP	"I was the graduate TA and taught clinical applications for the equivalency students...I talked about style and music intensity, but that was me teaching them.
		Ms. K	"I have less stylistic variation to do the country versus the rock versus whatever genre you're doing."
		MP	"I will try my best to sound like whatever the artist sounds like...that's probably the only self-training I have done."
		Riley	"I didn't get any instruction in popular singing and I think it would've made a huge difference at least I mean for me but also my peers...that was severely lacking in my training."
		Hurley	"If you're a voice major, maybe you don't need to take voice lessons. Maybe you do. Because if you're a classically trained vocalist who needs to figure out how to sing pop radio songs versus classical, you know, like voice pieces."
Extended vocal use		MP	"The lack of self-care was never discussed...I put in nineteen hours a week of direct services which probably involves singing...since I'm someone who wasn't a vocalist undergrad, I have no idea where to ask for help for my voice."

Themes	Subthemes	Participants	Examples
		Robbie	"Debriefing with interns, meetings are when my voice feels most strained...I can do several sessions a day, several group sessions projecting loudly, I can play a gig over the weekend, but when I'm talking for an extended period is when I feel like I start to strain."
		Riley	"I think being an internship director kind of takes the place of some patient care time. So, I don't know necessarily if it adds to it, I think it's just redirecting it. It's who I'm using it with because if I weren't with students I'd be with patients."
		Ms. K	"Sometimes when I'm singing, I'll notice that my voice is tired by the end of the day...I wasn't supporting my voice with my breath or you know what, I'm singing too many high things. I have my allergies right now, my voice is naturally low right now...Has I had more actual formal training I would catch those things and be able to adapt without damaging my voice or losing my voice."
		Hurley	"Looking back and saying, what did I do, what have I done that's caused me to feel this way? And most of the time, it kind of goes down to overuse."
The Negative Impact of Allergies and Sickness		Ms. K	"Music has always been an outlet for stress and I think worrying about my voice I don't utilize music as a stress outlet anymore...I'm providing for someone else's needs and something that I enjoy, I can't necessarily provide for my own needs cause' I am worried right now my allergies are bad."
		Robbie	"I've only lost my voice once or twice ever and it' usually like really bad allergies or sickness."
		MP	"I get sick almost every year when around flu season...I do all the things to prevent it...I still get sick every year. Allergies, I'm actually fighting them right now."
		Riley	"The environmental factors make singing very discouraging. So, having those allergies it's a significantly negative impact on singing."

Themes	Subthemes	Participants	Examples
Logistical and Financial Barriers		Ms. K	"Just finding the time...I also don't necessarily have the income right now to pay for private lessons...so it's either money or it's time-intensive or both. Even if you have private lessons, you have to practice for lessons, you can't just show up for your lesson and expect..."I'm going to do better just because I am showing up for my lesson once a month" ...how do I have a work life balance?...It's really just time, money, and burnout for me."
		Robbie	"If I had an extra hour a week and the funds to do it, I would love to take a private lesson."
		MP	"I've just not seen it offered before at the different conferences I've been to, classes I took at (my University)...I just haven't seen anything about it being offered."
		Hurley	"It's tough because you've got to juggle the financial impact of taking a lesson and the scheduling...managing work and life outside of work."

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