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Voices in Treble:

Self-reported Vocal Health of Student Singers

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Honors Project

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Abstract

The investigator examined reports of vocal health among singers in two different choral groups on a university campus, a population consisting of both music majors and non-music majors. These student singers consented to filling out a 36-question survey that asked about their overall vocal health and daily habits that might affect that health. A section of this survey involved rating answers from 0-4, while the other section required write-in answers. Results indicate that there is no significant difference in self-reported vocal health between music majors and non-music majors, although there were minor differences between these populations regarding daily habits, such as consumption of water and caffeine.

What makes a person unique? Is it their fingerprints, eye color, name? What about their voice? It is a fact often overlooked that a person's voice is unique to them – no two voices are alike (Latinus and Belin, 2011). Our voices are a main source of communication and expression, and keeping our voices healthy and functioning properly is important for our everyday lives. This is especially true of those who rely on their voices for their profession, such as salespeople, teachers, counselors, and singers. These individuals are known as occupational voice users, as their careers can be hindered by the effects of vocal dysfunction (Rosen, 1997). Furthermore, in a study focusing on voice disordered populations, older people were found to be most at risk for voice issues, and retired persons, factory workers, and managers were among the most affected (Herrington-Hall, et al., 1988). In this specific study, the investigators are looking at one group in particular: singers. Whether people sing professionally or just for fun, it is vital that they maintain a healthy voice. But how do singers know how to care for their voice? Where can they learn proper vocal hygiene? And is there a difference in vocal health between those studying and training to become professional singers and those who just sing for fun?

With these questions in mind, people who sing should be aware of how to properly take care of their voices, and yet may not be receiving the knowledge necessary to do so. If singers are not taught how to take care of their voices, it could affect their vocal health, which could have a negative impact on their lives. In a study that investigated voice disorders among adults, voice disorders were found to seriously affect quality of life (Smith, et al., 1995). Among the participants, 75% found that voice disorders affected their social interactions, and 61% reported low self-esteem. Additionally, participants viewed voice disorders as hindering both their present jobs (49%) and prospective jobs (76%). For people like singers, who rely on their voices daily,

suffering from voice problems has the potential to affect not only their general health and wellbeing, but also their confidence and employment opportunities.

Vocal problems are definitely an issue, and have been found to affect 3-9% of the population in the United States (Roy et al., 2005). Additionally, these voice problems have been found to be related to a person's profession, and singers are especially at risk (Williams, 2003). In a study that surveyed a group of singers and non-singers, 44% of singers reported diagnosis of a voice disorder, compared to only 21% of nonsingers (Phyland et al., 1999).

In a study that involved both trained and untrained singers, it was revealed that untrained singers more frequently experienced issues with voice quality, tension, and lesions (Teachey et al., 1991). These issues were concluded to be the result of a lack of education regarding vocal hygiene. In another survey that focused on trained and untrained singers, no difference was found between the two populations' vocal health. However, both populations were found to have experienced hoarseness, straining, and other voice issues (Tepe & Deustch, 2002). Both these studies indicate that trained and untrained singers experience voice problems, and that some may not be educated on how to take care of their voices. Elaborating on this research is important, as future studies may find more evidence to support the idea that students should be better informed on how to care for their voices. Therefore, this study sought to explore the self-perceived vocal health of music majors and non-music majors at a Midwestern university. Specific research questions include the following:

- 1) Looking at college students in various university choirs, is there a difference between the vocal health of music majors and non-music majors?

- 2) Is there a difference in knowledge regarding vocal health between majors and non-majors?
- 3) Have any of these students taken any courses regarding health/prevention of injury?
- 4) Should there be sessions in the choral setting that give students tips and resources for maintaining vocal health?

Method

Participants

Participants in this study were 78 students in a women's chorus and a mixed-gender chorus at a Midwestern public university. Students in both of these choruses meet three times per week throughout the semester for 50-minute interval classes. Out of the 78 students, 40 of the participants were music majors, while the rest (38) were non-music majors. 27 students were freshman, 13 were sophomores, 8 were juniors, 28 were seniors, and 2 were graduate students. Regarding voice types, there were 7 basses, 12 tenors, 28 altos, and 31 sopranos.

Procedure

Students attending class were asked to read a consent form and survey for the study. The first part of the survey was 36 questions total, and was made up of the Singing Voice Handicap Index (SVHI), with the question "Have you ever taken a course on vocal health/received vocal training?" being added by the investigator (Cohen, et al., 2007). Participants were asked to read these questions and rate them on a Likert-type scale of 0-4, 0 being never and 4 being always. The second part of the survey asked participants for demographic information about their voice type, year, major, and number of choral ensembles they participated in. This part of the survey

also asked participants to give an estimate of ounces of caffeinated beverages and water they consumed daily, as well as the average hours of sleep they had each night. The last question asked participants if they had ever sought help from a medical professional for a voice problem (see Exhibit A). At the time the survey was given out, participants were also asked to make a note at the bottom of the survey letting the investigator know if they had ever taken any courses related to vocal health.

Once the survey was completed, the investigator collected the participants' survey sheets. The first part of the survey – the ratings portion – was counted by the investigator and validated by another researcher familiar with quantitative research techniques. Based on the participants rating from 0-4, the ratings of each question were totaled to make a total score for the participant. Based on the SVHI, the higher the numerical score, the more likely the participant to have a voice-related problem. The second part of the survey was run through a t-test to compare if there was any statistical difference in the self-reports of vocal health between music majors and non-music majors.

Results

Out of the 78 students who participated in the study, there were 40 music majors and 38 non-music majors – a fairly even split. However, after tallying up all the scores for individual participants, it was noted that there were only a few high Voice Handicap Index (VHI) scores scattered among both majors and non-majors, with no discernible pattern of vocal health issues among a specific group. The average VHI score for music majors was 23.8, while the average VHI for non-music majors was 26.18 – slightly higher than music majors, but not significantly so.

Based on the t-test that was run, there was a slight difference between music majors and non-music majors regarding the amount of water consumed daily. Music majors who participated in the study were found to have consumed a daily average of 46 ounces of water, as opposed to non-music majors, who drank an average of 36 ounces of water daily. Participants who were music majors were also found to have consumed 10 ounces of caffeinated beverages per day, as opposed to non-music majors, who consumed an average of 8 ounces of caffeinated beverages per day. Once again, not a significant difference, but one worth noting.

Discussion

After reviewing these results, it is surprising that there was not a significant difference in vocal health and hygiene between majors and non-majors. Based on some of the literature reviewed, it was my hypothesis that music majors would report better vocal health and hygiene compared to non-majors. According to a study conducted by Braun-Janzen and Zeine, trained singers had more knowledge regarding vocal anatomy and health than amateur singers (Braun-Janzen & Zeine, 2009). Similarly, Margaret Olson in *The Solo Singer in the Choral Setting: A Handbook for Achieving Vocal Health* pointed out that untrained singers are at a disadvantage when it comes to taking care of their voices, and tend to exhibit characteristics such as the inability to make vocal adjustments when music becomes difficult, lack of stamina to maintain tone throughout rehearsal, and lack of breath capacity to sustain long phrases (Olson, 2010). Based on this, I assumed that non-music major singers would report that they experienced more issues with their vocal health than music majors, which ended up being refuted. While this result contradicts some of the literature reviewed, it also supports other research found. In a study that focused on young singers in training, Kwak and Stasney found that knowledge of vocal health and anatomy did not differ across various levels of training (Kwak & Stasney, 2014). In another

study that also examined young singers, Tepe and Deutsch found no difference in vocal health between trained and non-trained singers. In future studies, the researcher may want to consider surveying a larger sample size of student singers, or consider looking at student singers in choirs across several universities instead of just one. The larger population may give researchers a better look into the differences (or lack thereof) in vocal health among student singers.

After reviewing the survey responses, it has been concluded that there may have been some inconsistencies in some participants' responses. When giving the survey, the investigator instructed participants to answer an extra question: Have you taken any courses that discussed vocal health/had any vocal training? This question was verbally presented to participants, but was invalidated due to students' lack of response. Out of the 78 participants, only 8 answered the additional question. With so few participants answering, it was difficult to tell how many out of all the students we surveyed were actually trained and knowledgeable about vocal health.

Though the results of this particular study do not indicate significant differences in vocal health between these groups, this may not necessarily be an accurate representation of the population's vocal health. Participants who were surveyed may not have had a good understanding of what vocal hygiene entails, and may not have been able to recognize an issue with their vocal health, if there was one. This may have been due to participants' lack of knowledge and awareness of vocal health issues; if a student has not learned to look for signs of vocal damage, they may not recognize they have an issue. This may have also been due to lack of overall experience with singing. Younger singers, such as freshman and sophomores, may not be as educated and informed on vocal health and hygiene, and their survey answers may have reflected this lack of knowledge.

Additionally, there may have been some inaccuracies with reporting ounces of water and caffeine consumed daily, due to the seemingly unrealistic responses of participants. For example, 4 participants reported that they consumed about 100 ounces of water daily, while 1 reported that they consumed 120 ounces, and 1 other reported that they consumed 128 ounces. These amounts are a bit high, and may have skewed the data of the survey. Participants also gave unmeasurable and vague answers for water consumption, such as “two glasses of a drink,” “a lot,” and “not enough.” These answers may have made it more difficult to get a good estimation of students’ daily water consumption. In the future, the question of water consumption will give a frame of reference, such as 8oz in 1 cup of water.

Regarding how much caffeine students consumed daily, several students answered 1 ounce of caffeine daily, while a few others reported 2-3 ounces daily. One student also reported consuming $\frac{1}{2}$ an ounce of caffeine daily, and one simply responded that they drank coffee “all the time.” These answers may have also skewed the data, and may not be a good representation of the students’ actual caffeine consumption. It may also be a good idea for future research to distinguish between coffee and soda to accurately report ounces, as only one participant out of the 78 made a distinction between the amount of soda they consumed and the amount of coffee they consumed. This distinction could be made by clarifying that the measurements will be 6 ounces for a cup of coffee and 8 ounces for a soda cup.

Moving forward, further studies regarding vocal health of distinct populations could investigate college majors that rely on their voices for success in their occupation. These could include vocal performance, education, acting, and radio/television broadcasting, majors that have been found to have incidences of voice problems (Ng et al, 2005). Researchers could also look at college choral members and compare their vocal health to that of community choir members,

which may yield more support for differences in vocal health between trained and untrained singers.

Additionally, further research could involve a qualitative inquiry with interviews and narratives of those who have had vocal dysphonia and are now managing and overcoming symptoms. This could be a great way to focus on how treatment has helped those who have suffered from voice problems, and it could be interesting to see how their vocal knowledge has expanded over time. By already knowing that the population being observed has been affected by a voice problem, research can better yield how vocal health can evolve over time.

Regardless of whether music majors actually have better knowledge of how to take care of their voices compared to non-majors, the outcome of this study points toward the need for student singers to be more aware of their voices and vocal hygiene. Past research has found that some populations, like untrained singers, may be more at risk for vocal issues, and further research may do a better job of supporting that. However, regarding this particular group at this university, music majors and non-music majors seem to show no difference in vocal health – an unexpected but potentially interesting find.

Exhibit A

Singing Voice Handicap Index (Cohen, S. M. et al., 2007)

	Never	Almost never	Sometimes	Almost always	Always
1. It takes a lot of effort to sing.	<input type="checkbox"/>				
2. My voice cracks and breaks.	<input type="checkbox"/>				
3. I am frustrated by my singing.	<input type="checkbox"/>				
4. People ask "What is wrong with your voice?" when I sing.	<input type="checkbox"/>				
5. My ability to sing varies day to day.	<input type="checkbox"/>				
6. My voice "gives out on me" when I sing.	<input type="checkbox"/>				
7. My singing voice upsets me.	<input type="checkbox"/>				
8. My singing problems make me not want to sing or perform.	<input type="checkbox"/>				
9. I am embarrassed by my singing.	<input type="checkbox"/>				
10. I am unable to use my high voice.	<input type="checkbox"/>				
11. I get nervous before I sing because of my singing problems.	<input type="checkbox"/>				
12. My speaking voice is not normal.	<input type="checkbox"/>				
13. My throat is dry when I sing.	<input type="checkbox"/>				
14. I've had to eliminate certain songs from my singing/performance.	<input type="checkbox"/>				
15. I have no confidence in my singing voice.	<input type="checkbox"/>				

16. I have trouble making my voice do what I want it to.	<input type="checkbox"/>				
17. My singing voice is never normal.	<input type="checkbox"/>				
	Never	Almost never	Sometimes	Almost always	Always
18. I have to “push it” to produce my voice when singing.	<input type="checkbox"/>				
19. I have trouble controlling the breathiness in my voice.	<input type="checkbox"/>				
20. I have trouble controlling the raspiness in my voice.	<input type="checkbox"/>				
21. I have trouble singing loudly.	<input type="checkbox"/>				
22. I have difficulty staying on pitch when I sing.	<input type="checkbox"/>				
23. I feel anxious about my singing.	<input type="checkbox"/>				
24. My singing sounds forced.	<input type="checkbox"/>				
25. My speaking voice is hoarse after I sing.	<input type="checkbox"/>				
26. My voice quality is inconsistent.	<input type="checkbox"/>				
27. My singing voice makes it difficult for the audience to hear me.	<input type="checkbox"/>				
28. My singing voice tires easily.	<input type="checkbox"/>				
29. I feel pain, tickling, or choking when I sing.	<input type="checkbox"/>				
30. I am unsure of what will come out when I sing.	<input type="checkbox"/>				
31. I feel something is missing in my life because of my inability to sing.	<input type="checkbox"/>				
32. I am worried my singing problems will cause me to lose money.	<input type="checkbox"/>				

Yes

No

If so, how many ensembles in total? _____

41. On average, how many ounces of caffeinated beverages do you consume daily?

42. On average, how many ounces of water do you consume daily?

43. On average, how many hours of sleep do you get per night?

44. Have you sought help from a medical professional for a voice problem? If so, please briefly describe the voice issue.

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