

Misophonia: Awareness and Responsiveness Among Academics

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Abstract

The purpose of this study was to investigate university instructors' knowledge of and experience with misophonia, including whether instructors would make classroom accommodations typically requested by students with misophonia. Misophonia is a sound tolerance disorder, that is characterized by an oversensitivity to certain sounds which can result in the distraction of the person that may limit one's ability to concentrate, think, and learn. Qualitative data were collected using a survey sent by email to undergraduate instructors at six institutions in the state of Florida. A total of 686 participants completed the survey and were asked to define misophonia. Another set of ten questions was completed using a five-point Likert scale. Statistical analyses included inferential analysis of mean scores and principal components analysis. Only 18.4% of participants self-reported having knowledge of misophonia and only 2.3% reported that a student had requested accommodations in their course(s). Instructors who indicated knowledge of misophonia agreed that this is a condition to be taken seriously more often than those without knowledge of misophonia. Instructors who had experienced a student disclosure indicated that, with official accommodation, they would be willing to use proctored exams more often than those without experience of a student disclosure. The findings of this survey indicate that dissemination of information on the topic of misophonia is critical, both for educators and for students.

Keywords: classroom accommodations, sound-sensitivity disorder, misophonia

Misophonia, also known as selective sound sensitivity syndrome, was first described in 2001 by Jastreboff and Jastreboff as "abnormally strong reactions of the autonomic and limbic systems resulting from enhanced connections between the auditory and limbic systems" (para. 11). This sound tolerance disorder is characterized by strong emotional and behavioral reactions to certain sounds (triggers), as opposed to hyperacusis, which is a major sound tolerance disorder where individuals show negative emotional reaction to the loudness, not to the meaning or content of the sound (Baguley, 2003). Those with misophonia have strong negative reactions to the content of an acoustic trigger, such as chewing, but not the loudness. Currently, misophonia is not yet classified in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) (Schröder, Vulink, & Denys, 2013). Additionally, the condition is not included in the International Statistical Classification of Diseases and Related Health Problems, 11th revision. This lack of recognition, not only prevents clinicians from officially classifying the disorder but, in some

sense, de-legitimizes it, which also inhibits the individual from seeking help.

Recent investigations have helped to describe the signs and symptoms of this relatively unknown disorder. In a 2013 study, Schröder et al. noted a similar pattern of symptoms caused by triggers among 42 individuals experiencing symptoms of misophonia. In 81% of these individuals, eating-related sounds caused a misophonic reaction. Reactions included anger and fixation with specific sounds, causing the individual to avoid situations associated with trigger sounds. Other symptoms were triggered by loud breathing or nose sounds (64.3%) and keyboard or pen clicking (59.5%). The individuals in the study had initial contact with the misophonic stimuli, then experienced an aversive physical reaction. Individuals with misophonia experienced strong negative emotions (i.e., anger) in response to these triggers almost immediately (Kumar et al., 2017; Schröder et al., 2013). Additionally, 28.6% of individuals became verbally aggressive, and 16.7% directed physical aggression towards objects, demonstrating that

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individuals with misophonia feel a loss of self-control (Schröder et al., 2013). All participants reported avoiding situations where they anticipated these types of negative reactions to auditory stimuli. Since the stimuli that may cause someone to experience a misophonic reaction are usually produced by another human, the individual connects social contexts to the possibility of the stimuli being produced. Thus, they begin to actively anticipate these contexts to avoid the aversive reaction that was initially felt. This can limit the daily life of an individual with misophonia, and limited assistance has been provided due to the lack of misophonia awareness.

The prevalence and incidence of misophonia is currently unknown due to the lack of report measures. Currently, there are no statistics available regarding the number of individuals living with misophonia; however, associations between misophonia and more accepted sound disorders, such as tinnitus and hyperacusis, have been documented. Misophonia occurs in individuals who have normal hearing, but more commonly occurs in conjunction with tinnitus and hyperacusis (Jastreboff & Jastreboff, 2006). Misophonia was present in 60% of individuals with tinnitus who participated in Jastreboff and Jastreboff's 2006 study, as they both may be associated with hyperconnectivity between the auditory and limbic systems. This results in heightened reactions to their respective trigger sounds (Edelstein, Brang, Rouw, & Ramachandran, 2013; Jastreboff & Jastreboff, 2006).

Two studies have examined the prevalence of misophonia in an undergraduate student population. Wu, Lewin, Murphy, and Storch (2014) examined 483 University of South Florida undergraduate students with misophonia symptoms through self-reported measures. Of this sample, 23.4% indicated they are "sometimes" sensitive to each of the listed sound sensitivities. An additional 19.9% of participants self-reported clinically significant misophonia symptoms that were identified as causing interference in daily life. Findings from this study were replicated and extended in the work completed by Zhou, Wu, & Storch (2017) with 415 undergraduate students in China. Findings were similar to the previous study in that 27.6% of students in this study reported they are "sometimes" sensitive to sounds and 16.6% identified that misophonia symptoms caused significant interference with their daily lives. Additionally, when an impairment criterion was added, rates of misophonia symptoms associated with "moderate" levels of impairment decreased to 6% of the sample. These researchers suggested that while students may experience sound sensitivity, a smaller percentage actually experience associated impairment. These associated

impairments included anxiety and depression and would also be expected to negatively impact students at the university level. The findings of these studies from nonclinical university samples, indicate that misophonia may be somewhat prevalent in the general population. These studies highlight the impairment that can occur in educational settings in individuals with misophonia.

The Americans with Disabilities Act (ADA) of 1990 led to an increased recognition and validation of disabilities in students. According to the ADA, a person with a disability is someone with:

a physical or mental impairment that substantially limits one or more major life activities, including, but are not limited to, caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating and working. (p. 7)

Given the level of limitation reported by individuals with misophonia, it is likely that a student with misophonia may experience difficulties in a classroom environment. In the 2014 University of South Florida study, 22.8% reported often/always being sensitive to the sound of people eating and 22.8% were often/always sensitive to repetitive tapping (Wu et al., 2014). For students with reported misophonia symptoms, moderate/higher levels of function impairment were seen with 52.1% for school and work functioning, 22.9% for social functioning, and 18.8% for family and home functioning. The similar study for students in Chinese universities found that 16.6% reported sensitivity to sounds of eating and 16.9% reported sensitivity to tapping sounds (Zhou et al., 2017). Moderate/higher levels of functional impairment were self-reported in 25.7% for school and work functioning, 11% for social functioning, and 10.4% for family and home functioning. Insight from these studies indicates that university students may be impacted by triggers that exist in a typical classroom setting. An individual who experiences misophonia can possibly ask for accommodations, such as the cessation of students eating in class or the ability to wear earphones and listen to white noise or other soothing auditory stimuli. A student's success in the classroom may be dependent on the accommodations a professor is willing to provide.

The awareness of professors and their receptivity to provide classrooms accommodations can impact a student's education. A student's ability to divulge information about their condition and have their accommodations met are paramount in improving their

educational experience and emotional well-being. Preparing professors for inclusive classrooms means challenging their expectations, attitudes, beliefs, and acceptance of diverse students (Umesh, Forlin, Loreman, & Earle, 2006). This preparation can be beneficial for both the educator and the student. For students who have learning disabilities, studies have shown increasing a professor's contact and experience with special educational needs students combined with training and knowledge has led to more positive attitudes (Woodcock, 2013).

A 2006 study by Fields analyzed 36 general education teachers' perceptions regarding challenges given by a diverse student population with special needs. The teachers were enrolled in a university course in special education. Teachers were presented with 14 case descriptions of students with varying characteristics and special needs in the form of scenarios. Student descriptions included, but were not limited to, intellectual disability, specific learning disability, sensory impairment, gifted and talented, communication disorder, homeless, behavior disorder, cultural difference, and psychological disorder. Teachers rated the students in the scenarios on the level of difficulty they need to provide an inclusive education for them and chose which characteristics of the students would be the most challenging for them. The teachers identified students with a behavior disorder; cultural difference; psychological disorder; indigenous; and a sensory impairment as the most challenging when they are responsible for providing to their needs. On the contrary, the least challenging to the teachers were students with an intellectual disability; gifted and talented; or a communication disorder. Out of the five most challenging student characteristics, only one had a recognized disability (sensory impairment – hearing loss). A similar study by Soodak, Podell, and Lehman (1998) studied 188 general educators' responses to include students with disabilities in their classrooms. Teachers had more positive attitudes towards students with social and physical disabilities than academic or behavioral disabilities. It should be noted that there is overlap between misophonia and sensory processing disorder (SPD), specifically sensory over-responsivity (SOR) (Schröder et al., 2013). Given this potential correlation, it is likely that a student with misophonia would be a challenge for teachers who are responsible for the behavioral, learning, and social needs of students. Currently, there is no study that investigates professor's perception on misophonia. The purpose of this study was to survey faculty from six state universities in the state of Florida who instruct undergraduate courses concerning their awareness and willingness to provide accommodations to consider the needs of students dealing with the symptoms of misophonia.

Methods

Survey Development

There were two areas of focus for the faculty survey created, including knowledge of misophonia and willingness to provide accommodations to students reporting this condition. A draft was written using surveys created to address similar questions with different populations (Baker, Boland, & Nowik, 2012; Bourke, Strehorn, & Silver, 2002). Since misophonia is not yet a recognized disorder, some of the questions addressed accommodations in a general sense, meaning to alter behavior or policies in the classroom. These questions were included to determine if faculty members would consider altering classroom behavior or policies on a case-by-case basis. Other questions specifically noted that the university disability support office had specified accommodations for the student. Accommodation-based questions were included for situations that would likely transpire with a college student dealing with misophonia symptoms in the classroom. To ensure content validity, a review was conducted by a senior university research analyst who provided suggestions for improved format and content. This feedback was utilized to create the final survey which was connected to a hyperlink for presentation to participants through an email format. The final survey consisted of initial questions to indicate consent to participate and to determine that the individual had instructed at least one undergraduate course within the past two years. The survey was set up to take individuals who had not instructed an undergraduate course in the past two years to a survey exit without completing it. Further demographic questions included university affiliation and college of employment within the university. A yes/no response determined if participants knew the definition of misophonia; following that, a definition was provided regardless of how they answered to insure accurate understanding. The definition provided came from Edelstein et al. (2013) who defined misophonia as the following:

A chronic condition in which specific sounds provoke intense emotional experiences and autonomic arousal within an individual. Trigger stimuli include repetitive and social sounds typically produced by another individual, including chewing, pen clicking, tapping, and lip smacking. These experiences are not merely associative in nature, but drive the sufferer to avoid situations in which they may be produced, limiting one's ability to interact. (p. 1)

Another set of 10 questions was completed using a five-point Likert scale with choices given as strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, and strongly disagree. These questions were formulated to address provision of accommodation under various situations. Survey questions dealing with classroom adjustments or accommodations, along with relevant statistical data, can be found in Table 1.

Participants

This project was approved by the university's Institutional Review Board for the protection of human subjects before the participants were contacted. Participants were recruited via email from a list of instructors provided by six state universities in Florida. An initial email was sent using Qualtrics' email distribution system to instructors explaining the purpose of the study and containing a link to the Qualtrics survey site. Strategies utilized to encourage participation included informing potential participants that completing the survey would take approximately ten minutes and two email reminders were sent one week and three weeks after the original email request.

Results

Demographics

Out of a total of 9,029 surveys that were emailed to instructors, 1,300 (14%) completed the first item which was to give consent to participate. The second item on the survey determined if participants met the criteria of teaching an undergraduate course in the past two years. Of the 1,300 who consented to participate, 788 (61%) answered "yes" to this item. Finally, of those 788 who both consented and met the undergraduate teaching criteria, 686 (87%) fully completed the survey. According to Mills and Gay (2016), in survey research when the total population size reaches or exceeds 5,000 individuals, a sample threshold of 400 may be adequate in representing that population. In the case of the current investigation, the participation of 686 individuals far exceeds that acceptable response rate.

Survey Analyses

The data were converted into a SPSS data file for statistical analysis with IBM SPSS (24). Analysis was completed in order to determine the level of internal consistency of response (reliability) of participants' responses to the study's survey items. In determining the omnibus level of internal consistency of response to the study's survey items, a *Cronbach's alpha* of $\alpha = .47$; $p < .001$ was achieved. Although this level is

generally considered to be acceptable for exploratory research with a newly-created survey, re-coding of two specific survey items (1 and 3) yielded an overall alpha of .73 (Kline, 1999). Additionally, according to Tavakol and Dennick (2011), there is often an underlying assumption of "unidimensionality" regarding an alpha value. Further, in cases where an alpha value might fall below .60, Tavakol and Dennick recommend evaluation of specific dimensions of the survey. In order to evaluate specific dimensions which might be impacting the level of reliability, exploratory factor analysis was utilized to identify the underlying relationships between variables in this newly-developed survey. Specifically, Principal Components Analysis (PCA) determined that three distinct "factors" or "dimensions" were present in the study's data set that accounted for 60.4% of explained variance of survey item data. These included: (1) Making accommodations based upon student approval through university, (2) Attitudes toward misophonia, and (3) Behavior changes in light of a student with misophonia. Results from the PCA for this study are displayed in Table 2 which summarizes these individual breakdowns of the alpha levels. The assessment of the internal reliability of participant response using the three dimensions depicts a more appropriate level of internal reliability in line with Tavakol and Dennick.

Findings

One primary purpose of this study was to determine if faculty members have knowledge of misophonia. Only 18.4% of participants responded "yes" to this question. The next survey question asked the person to define misophonia, if possible. A large majority responded with "not applicable" which was the requested answer if they did not know the definition. Most who did answer indicated they did not know, but guessed it had something to do with "sound," "hearing," or "voice." Most indicated that their answers were strictly guesses based on knowing parts of the word, including making a connection between "phonia" and hearing or speech sounds. Additionally, some of the participants indicated that they looked up the word "misophonia" before completing the survey after seeing it mentioned in the initial email. However, those with this response further explained that prior to that, they did not know the definition and indicated "no" to the question of whether they knew what misophonia was. When these instructors were asked if a student had disclosed having misophonia, only 2.3% of participants indicated "yes," with 97.7% indicating that no students had ever disclosed misophonia to them. The 2.3% or 17 participants who said yes were taken to a second question on that topic and asked how many stu-

dents had disclosed misophonia. Answers ranged from one to three students for this question.

Inferential analysis specifically involving the *Single Sample t-test* was used to compare the mean scores of each survey item against the survey's "null" or "neutral" value (3.0). Results indicated that each of the 10 survey items was responded to in a statistically significant manner. Table 1 contains a summary of the comparison using mean score, level of agreement, and single sample *t* value with a null of "3" for each survey item.

When comparing the mean scores on survey items of participants who were "knowledgeable" about misophonia to participants who were "not knowledgeable," the differences in responses to three of the survey items (#1, #2, & #3) were statistically significant favoring the "knowledgeable" group of study participants. This comparison is illustrated in Table 3.

Participant perceptions of misophonia were evaluated in regard to whether or not a student had disclosed having misophonia to the participant. When comparing the mean scores on the survey items of participants who experienced "student disclosure" about misophonia to participants who had not experienced "student disclosure," the differences in responses to three of the survey items were statistically significant in favor of the "student disclosure experience" group. Table 4 depicts the comparison between these items.

Regarding the impact of participant knowledge of misophonia, the dimension of "attitude towards misophonia" was most impacted by those who were knowledgeable compared to those who were not knowledgeable ($t_{(684)} = 4.31; p < .001$). Moreover, concerning the impact of "student disclosure," the dimension of "attitude towards misophonia" was most impacted by those who had experienced a student disclosure as opposed to those who had not ($t_{(684)} = 2.14; p < .05$).

Predictive Effect of Survey Items

Two survey items were found to have exerted predictive effects on survey questions concerning willingness to accommodate students with misophonia. The first item is the belief that "misophonia is in one's head," which is survey item #3. This item exerted a robust statistically significant effect ($p < .001$) on instructors' willingness to items five through 10 on the survey (see Table 1). The predictive effect is inverse, and simply put, as instructor perception of misophonia being in "one's head" increases, the tendency toward instructor willingness to accommodate and change personal behavior decreases. The second item with predictive effect was item #2 "misophonia should be taken seriously." This item exerted a robust direct predictive effect ($p < .001$) on instructors'

willingness to the same survey items #5-#10 (see Table 1). This direct predictive effect illustrates that as instructor perception of misophonia being taken "seriously" increases, the tendency toward instructor willingness to accommodate and change personal behavior increases as well.

Discussion

Recent research indicates that several of the most common sounds that may trigger symptoms of misophonia, including eating, breathing, keyboarding, and pen clicking occur often in university classroom settings (Schröder et al., 2013). It is likely that a classroom setting and other students may result in triggers in an individual with misophonia. The purpose of this study was to survey instructors of undergraduate college students regarding their knowledge of misophonia. Additionally, information was sought regarding specific situations where a student might request classroom accommodations for misophonia and whether the instructor would be willing to comply with these requests. Only 18.4% of the instructors surveyed reported that they knew the definition of misophonia. This leaves a very large number of instructors who do not have knowledge of this disorder or the issues students with misophonia may be facing in their classrooms. Only 2.3% of instructors surveyed indicated that students had disclosed having misophonia to them. While there is not currently a description of the prevalence of misophonia, it is likely based on this very small percentage that there are students dealing with this issue who are not discussing it with their instructors. Several recent studies have examined college students' attitudes and motivation regarding requesting accommodations in the classroom. Results indicated that students may hesitate to disclose disabilities or request accommodations because they do not want to be seen as asking for special treatment or to call attention to a disability that is not visible (Lyman et al., 2016; O'Shea & Meyer, 2016). Lyman et al. (2016) reported a theme among college students indicating that they did not know if they were disabled enough or if their particular disability qualified them for accommodations. Given the lack of general information about misophonia, it would not be surprising that students dealing with this issue would be unsure about their qualification for classroom accommodations which could result in the lack of accommodation requests. It is also critical to look further into the concepts of instructor knowledge and the classroom accommodations that might be requested by students with misophonia. Findings from the current study signified that respondents who

indicated knowledge of misophonia were more likely to provide classroom accommodations to students with misophonia than those who did not report such knowledge. Similarly, those who had previously experienced a student disclosure of misophonia and who, therefore, had knowledge were more likely to accommodate student requests than those who had not. Instructors who reported that they felt misophonia was a serious issue were more likely to accommodate requests and change personal behaviors. Taken together, findings from this study indicate that increased knowledge and communication between instructors and students would be beneficial. The findings further signify the value of educating faculty members about disabilities in general and particularly less prevalent disorders such as misophonia.

As with all survey research, the results of this study should be interpreted with some level of caution. Since this survey was sent to a large number of faculty who could self-select into participation, it is possible that the results are limited to those who showed at least a slight level of interest in the topic of misophonia and/or classroom accommodations. The survey was completed only by instructors of undergraduate course(s) in state-funded schools in Florida, therefore the results cannot be generalized to instructors in other locations or types of teaching environments. Future research aimed at a more wide-spread population of instructors could be useful, including those instructing graduate and undergraduate courses in both public and private institutions of higher education or those who teach in elementary, middle, and high schools as misophonia can be present as early as in the first decade of life. Examination of factors involved in face-to-face courses versus online courses may also be considered. This study was focused on hypothetical questions about what an instructor would do if presented with accommodation requests from students with misophonia. Future investigations could focus on what accommodations have been given by instructors in the past, although the low number of student disclosures indicates that there may be a low response rate to this type of survey. Furthermore, since there is a strong connection between instructor knowledge and perception that misophonia is to be taken seriously, additional research into instructor perception of university support for these accommodations could be useful. For example, are instructors presented with information on any of the disorders they are dealing with in the classroom and what more can be done to help them understand the needs of students at a university level?

The information contained in the disclosure for participation did present a general definition of misophonia as a “sound tolerance disorder.” As previous-

ly stated, this may have encouraged or discouraged participation based on interest of each respondent. In addition, it did provide general information that participants may have used when completing the question about whether or not they knew what misophonia was. The use of a consent form that does not define misophonia would be more useful in accurately accessing instructor’s knowledge level in future studies of this topic.

The survey utilized in this investigation was created for this study itself and was not previously examined for internal consistency of the survey items themselves. During analysis, question 1 (“misophonia makes no sense to me”) and question 3 (“misophonia is ‘in the head’ of the individual”) were recorded positively to be more uniform with the other eight questions. With this adjustment, the alpha level went from .47 to .70 indicating that making these modifications to future versions would improve the internal consistency of the survey questions utilized. Further, the questions utilized in this survey were closed-ended questions and the use of at least some open-ended questions may provide further insight into needs not yet recognized.

Implications

Presently, misophonia has not yet been classified as a disorder, even though the description of this issue relates highly to several classified disorders (Schröder et al., 2013). Currently, misophonia has not been classified as a neurological, psychiatric, or auditory disorder. It is important to use a framework to consider the impact of disabilities on individuals’ daily lives regardless of which types of disorder misophonia is eventually determined to be. In order to understand the role of health conditions and disability, the World Health Organization (WHO) has generated a comprehensive framework based on a bio-psychosocial approach, namely the International Classification of Functioning, Disability and Health (ICF; World Health Organization, 2001). This framework has been used to a large degree to conceptualize the impact of various health conditions including hearing loss and other disabilities. In examining this framework, it is helpful to consider the WHO definitions and how persons with misophonia may be impacted in their daily lives.

The ICF model provides a definition for disability as an umbrella term for impairments, activity limitations, and participation restrictions, whereas an impairment is a problem in body function or structure. Misophonia itself can be viewed as a disability. Using the ICF model, misophonia can be considered as a bio-psychological impairment. This condition results in activity limitations (e.g., avoiding a classroom situation) and participation limitations (e.g., the individual

is not willing to go to restaurants because of their sensitivity to chewing sounds, hence causing withdrawal from social interactions). For an individual dealing with misophonia, participation in social, vocational, and/or educational opportunities may be diminished if the person either has an emotional reaction or must leave environments where trigger sounds are encountered. This person would be unlikely to perform at their highest capabilities in the classroom, which often requires the ability to focus in a classroom environment and interact with instructors or other students.

Results of the current investigation indicated that faculty who are more knowledgeable and who reported they feel that misophonia is a real issue are more likely to provide classroom accommodations for students. It appears that knowledge about misophonia was related to perceptions of empathy and understanding the importance of considering the needs of students with misophonia. Conversely, those who indicated a lack of understanding that misophonia is a real impairment were less likely to accommodate student requests. Responses to our survey also revealed that faculty indicated quite low levels of knowledge of misophonia, therefore, it is critical that faculty are presented with information regarding students who may struggle with this issue. Additionally, results indicated that having an experience where a student disclosed symptoms of misophonia was related to more likelihood of understanding and accommodating the needs of students with this issue.

Even though this survey was designed to inform us of instructors' knowledge and willingness to accommodate undergraduate students with misophonia, it is also important to note that consideration should be given to the individuals dealing with misophonia as well. Many individuals with misophonia report onset in childhood or early teenage years, so it is likely that this problem will be dealt with during the college years (Rouw & Erfanian, 2017). In the current investigation, nearly 98% of instructors indicated a student had never disclosed having misophonia to them, meaning that only 2.3% had experienced a student disclosure. While disclosure of misophonia and actually having signs and symptoms of misophonia are not one and the same, there is some level of relationship. The study by Wu and colleagues (2014) specifically surveyed university students and nearly 20% of those surveyed self-reported experiences associated with misophonia. It is likely that the actual prevalence may be somewhere between that self-report of 20% and the low student disclosure of 2.3% reported in the current study, but what we can take from what is currently known is that students with misophonia will be negatively impacted in university classrooms

without proper accommodations. This assumption is beginning to be reported by researchers in this area. It has been reported that individuals with misophonia could experience intense reactions or possibly even avoid situations where trigger sounds will be present (Schröder et al., 2013). In a large-scale study of over 300 individuals with misophonia by Rouw and Erfanian (2017), 87% of respondents indicated difficulty paying attention to movies or in a classroom due to misophonia.

There are specific challenges to providing assistance for college students with misophonia. The fact that misophonia is not currently labeled as a "disability" but it does impair students in the classroom leads to some confusion. We believe that taking a three-prong approach will aid in sorting out how to best assist these students. Further dissemination of information regarding misophonia should involve students, instructors, and disability support personnel. Students who experience challenges in the classroom due to sound tolerance disorders should be encouraged to communicate these issues both to instructors and to disability support personnel. Individuals dealing with misophonia will likely need to seek assistance from an audiologist to help determine how best to manage their impairment. Instructors who are aware of misophonia and open to allowing the student to alter normal expectations for classroom behavior will improve the situation for these students. In addition, as we learn more about misophonia, health care providers will determine more useful strategies for classroom success. Diagnosis of misophonia can be facilitated by an audiologist, using hearing evaluations and checklists. One aspect is to rule out hyperacusis, which is sensitivity to moderately loud and loud sounds that may not be perceived as too loud by others. The major difference between hyperacusis and misophonia is that individuals with hyperacusis are annoyed by the loudness of a stimulus; however those with misophonia are annoyed by the content of the stimulus and not necessarily by the loudness of it. Currently, very few studies demonstrating an evidence base for treatment of misophonia have been published. Edelstein and colleagues (2013) described case studies of individuals with misophonia and noted the use of coping strategies, including self-distraction, use of headphones or music, self-focus on one's own sounds, and positive internal dialogues. At first glance, the request to wear noise-cancelling headphones during a class or exam might not seem acceptable, but information provided by the student, his/her healthcare provider, and disability support personnel may facilitate better classroom performance. There is not one simple "fix" to manage all individuals with

misophonia. Since the use of different treatment and strategies is widely varied, it is important to realize that accommodations or classroom alterations will vary from person to person.

The findings from this study provide support for the fact that undergraduate college students with misophonia are likely facing disabling situations that may lead to academic underperformance or even failure. In addition, this study supported the concept that both instructors and students should be better educated on this topic. Research has shown that instructors dealing with accommodations for students with learning disabilities indicated that the student's attitude would influence whether or not accommodations would be provided (Nelson, Dodd, & Smith, 1990). More recently, Becker and Palladino (2016) examined faculty perspectives regarding teaching students with disabilities. Based on faculty responses, these authors concluded that high-quality professional development opportunities for faculty would be beneficial to the use of accommodations. In addition, they point out that faculty who have more experience with students with disabilities will be more willing to engage and properly meet needed accommodations for these students. An intersection between student and instructor understanding of misophonia is critical. Service disability providers can serve important roles in assisting students and working to expose faculty to the characteristics and challenges of this little-known disorder. Individuals working in this area should be equipped with knowledge about misophonia as it results in impairments at the level of body, person, and society to the individuals who struggle with this condition and, by definition, they should be considered as a person with a disability. It is also important for physicians and health care providers to provide documentation for this disability in order for university service disability providers to adequately advocate for students with misophonia. University administrators can work to coordinate efforts among agencies that support students with disabilities, the instructors, and the students dealing with misophonia.

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Table 1

Mean Scores, Standard Deviations (t-values, and Effect Sizes for the 10 Survey Items)

Survey Item	Mean Score	SD	<i>t</i>	<i>d</i>
1. Misophonia makes no sense to me.	2.21	1.06	19.41***	0.75 ^b
2. Misophonia should be taken seriously.	4.04	0.91	30.01***	1.14 ^a
3. Misophonia is “in the head” of the individual.	2.22	1.00	20.59***	0.78 ^b
4. Students with Misophonia should go through the university for accommodations.	4.32	0.99	34.84***	1.33 ^a
5. I will make accommodations even if student has not gone through the university for approval.	2.75	1.35	4.80***	0.19
6. I will allow headphones to be used if student has formally gone through university for accommodations.	4.53	0.87	46.12***	1.76 ^a
7. I will allow proctored exams if student has officially been authorized to receive accommodations.	4.79	0.64	73.45***	2.80 ^a
8. I will allow note taker/tape recorders if student has officially been authorized to receive accommodations.	4.67	0.78	56.24***	2.14 ^a
9. Eating in class will not be allowed if chewing noises disrupt a student with Misophonia.	3.34	1.32	6.82***	0.26
10. I will change my behavior if the behavior is unbearable for the student with Misophonia.	3.58	1.12	13.56***	0.52

Note. *** $p < .001$ ^a Very Large Effect Size ($d \geq 1.30$) ^b Approximate Large Effect Size ($d = .80$)

Table 2

Exploratory Factor Analysis (EFA) Results

Factor/Dimension	Questions Loading on Factor	Explained Variance	<i>a</i>
Making accommodations based upon student approval through university	4;6;7;8	23.32%	.71***
Attitudes toward misophonia	1;2;3	18.66%	.61***
Behavior changes in light of student misophonia	5;9;10	18.43%	.65***

Note. ***All Domain Alpha levels reflect internal reliability values statistically significant at the .000 Level ($p < .001$).

Table 3

Comparisons of Survey Items 1-3 by “Knowledge Level” of Misophonia

Survey Item/Group	n	Mean	SD	<i>t</i>	<i>g</i>
Misophonia makes no sense to me (Knowledgeable)	127	1.82	1.10	4.70***	0.46 ^a
Misophonia makes no sense to me (Not Knowledgeable)	559	2.30	1.03		
Misophonia should be taken seriously (Knowledgeable)	127	4.29	0.95	3.51***	0.34
Misophonia should be taken seriously (Not Knowledgeable)	562	3.98	0.89		
Misophonia is “in the head” of the individual (Knowledgeable)	127	1.86	0.89	4.88***	0.44 ^b
Misophonia is “in the head” of the individual (Not Knowledgeable)	562	2.30	1.01		

Note. *** $p < .001$ ^aApproximate “Medium” Effect Size ($g = .50$)

Table 4

Comparisons of Survey Items 1-3 by “Disclosure Experience” of Misophonia

Survey Item/Group	n	Mean	SD	t	g ^a
Misophonia makes no sense to me (Disclosure Experience)	14	1.43	0.76	3.88***	0.76 ^a
Misophonia makes no sense to me (No Disclosure Experience)	672	2.23	1.06		
Misophonia should be taken seriously (Disclosure Experience)	14	4.64	0.50	2.53**	0.68
Misophonia should be taken seriously (No Disclosure Experience)	675	4.03	0.91		
Misophonia is “in the head” of the individual (No Disclosure Experience)	14	1.57	1.02	2.44*	0.66
Misophonia is “in the head” of the individual (No Disclosure Experience)	675	2.23	1.00		
I will allow proctored exams if accommodations are authorized (Disclosure Experience)	14	5.00	0.00	8.45***	0.33
I will allow proctored exams if accommodations are authorized (No Disclosure Experience)	675	4.79	0.65		

Note. * $p < .05$ ** $p = .01$ *** $p \leq .001$ ^a Approximate “Large” Effect Size ($g = .80$)