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Pathology

PREVALENCE AND CONSISTENCY PREDICTION OF REACTION FOR MISOPHONIA AMONG MILLENNIALS

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ABSTRACT Misophonia is an under - investigated condition which is often typified as an extreme sensitivity to specific low volume sounds and images that elicit an intense physiological and emotional response (Jastreboff and Jastreboff, 2002). Those sounds are quite common in home, colleges and in social environment; it creates an adverse effect on individual's social, family, mental - physical health and personal life. The main aim of the study is to predict the prevalence and consistency of reaction for misophonia among millennials. Fifty millennials aged 18-25 years were included in the study. Brain basis of misophonia, a self-evaluation questionnaire (Kumar,2017) was given and the participants were asked to self-evaluate and the results were statically analyzed, which reveals that among 50 millennials, 12 minimal, 13 mild, 9 moderate, 5 severe and 11 very severe misophonic prevalence were noted and documented. Reactions such as irritation, anger, closure of ears and avoiding the situation were most the common consistent responses were noted in association with misophonia.

KEYWORDS : Sound, Misophonia, Millennials, Sensitivity.

INTRODUCTION:

Sound is produced by continuous and regular vibrations. Sounds of chewing, breathing, snoring, keyboard typing is considered as normal and are avoided as background noises by most of the people in everyday listening. But for some, it is not only distracting, it also provokes anger and irritation accompanied by an urge to escape form the situation. Almost a decade ago, this was named as misophonia which is literally translated to hatred of sounds. It is characterized by a negative reaction to a sound by an individual (Kumar, 2014). It is present whenever an abnormally strong reaction occurs to a sound with a specific pattern and/or meaning to an individual (Jastreboff, 2013).

Misophonia is an unexplored chronic condition in which certain sounds provoke an intense emotional experiences and autonomic arousal within an individual. The reaction is analogous to an involuntary fight-or-flight response. Trigger stimuli includes specific mild, repetition and social sounds such as pen clicking, chewing and feet tapping which is typically produced by other individual. It was also known as selective sound sensitivity syndrome and was initially coined by Jastreboff, 2000. It is defined as an extreme sensitivity to specific low volume sounds and images that elicit an intense physiological and emotional response (Jastreboff and Jastreboff, 2002). The sound of fingernails on a chalkboard is an emotionally evocative stimulus that provokes extreme discomfort in a certain population (Zald and Pardo,2002). Individuals with misophonia often refer this stimulus has an extreme nature of trigger sensations to them. Exposure to trigger sounds induce anxiety, panic and rage among individuals with misophonia. These experiences are not just associative in nature. They drive the sufferer to avoid the situation which makes them feel awkward. It limits one's ability to interact with others and leads to severe problems in their social and professional lives often. It is a primary disorder which has no obvious comorbidity with any other known psychological or neurological conditions (Schroderetal,2013).

The prevalence of misophonia is still under active investigation. Misophonics are fully aware about their own condition of the presence of abnormal responses as they have to trigger to certain specific sounds. Besides, most of the sufferers can identify the condition in at least one close relative, suggesting a possible hereditary component (Edelstein,2013). Misophonia appears to show few general similarities to tinnitus. In fact, both misophonia and tinnitus are associated with hyper connectivity between the auditory and limbic systems, suggesting that they both would evoke heightened reactions to their respective sounds (Jastreboff and Hazell, 2004). Despite of these similarities, misophonia varies from tinnitus significantly in particular conditions in which it is localized around certain human produced sounds and situations as they are opposed to internally perceived abstract sounds. While majority of people experience general and absolute emotional reactions to a range of sounds (Halpern et al, 1986), these widespread negative associations remain non-deliberating and cause annoyance to the listener. It is possible that the symptoms of misophonia can reflect more extreme in subjective discomfort and physiological response to emotionally evocative stimuli (Cavanna, 2015).

Misophonia can not to be considered as a pathology or a psychol ogical/psychiatric problem (Jastreboff, 2000). Systemic studies of misophonia are very limited. In the field of psychiatry, a debate is growing on whether it is a distinct psychiatric disorder or a variety of hyperacusis which is often associated with neuropsychiatric disorders (Taylor, 2017). Especially, neurodevelopmental disorders including Tourette syndrome and Autism Spectrum Disorder (ASD) have been shown to be associated with misophonia in a proportion of cases, suggesting shared neurodevelopmental trajectories (Cavanna, 2013). Research studies in the field of audiology have not distinguish misophonia from hyperacusis still (Sheldrake,2015). People with severe hyperacusis always experience misophonia (Jastreboff and Jastreboff, 2015). Severe hyperacusis is typically characterized by strong across-frequency variations in sensitivity to sound, which is an indication of adverse reaction only to specific sounds, a feature that is associated with misophonia (Aazh,2018). Hence, it is important to predict the prevalence of misophonia and consistency of reaction for misophonia to provide appropriate listening training in order to handle the situations. It helps them to socialize well in spite of their condition.

II NEED FOR THE STUDY

Over the past few decades, the literature on misophonia is scarce. People with misophonia are emotionally affected by common low intensity sounds, which is usually made by others and the ones which other people do not pay attention to. Rather than making them embarrassed, their problem should be taken into consideration and treated accordingly. To remediate these issues, prevalence and consistency of reaction for misophonia among millennials should be predicted.

III OBJECTIVE OF THE STUDY

The objective of the study is to predict the sounds that are sensitive, consistency of reaction and severity of misophonia among millennials.

IV AIM OF THE STUDY

The main aim of the study is to predict the prevalence and consistency

of reaction for misophonia among millennials.

V METHOD OF THE STUDY

5.1 PARTICIPANTS

Fifty millennials aged 18-25 years were taken for this study. By evaluating Pure Tone Audiometry (PTA), Immittance audiometry (IA) and Otoacoustic emissions (OAE), the individual's hearing status were screened to rule out the effects of variables over misophonia. The individuals who satisfy the following criteria were included for this study: (1) normal hearing status , (2) no history of otological issues and, (3) volunteered to be part of the study. Any individual with hearing loss, middle ear problem and other otological issues were excluded.

5.2 MATERIALS

Brain basis of misophonia, a self-evaluation questionnaire (Kumar et al., 2017) was given to the participants. It is comprised of 24 items, which measures the following three broad domains: (i) sensitive sounds to the sufferer (ii) reaction of misophonic to those sounds (iii) severity of misophonia. It is a 5-point rating scale, in which the first domain consists of low sensitive sounds along with the few examples. An individual should rate 0 for not at all true, 1 for rarely true, 2 for sometimes true, 3 for often true and 4 for always true. In the second domain, the reactions after getting exposed to those sounds are listed out. One has to rate 0 for never, 1 for rarely, 2 for sometimes, 3 for often and 4 for always. In the third domain, severity of misophonia is rated based on the individual's sensitivity, degree of distress and an impact in their own life. It ranges from minimal, mild, moderate, severe and to very severe sound sensitivities.

5.3 PROCEDURE

The study objective and purpose were clearly elucidated to the millennials. Participants were instructed to respond to the questionnaire based on the guidelines given. The data was collected eventually, along with the demographic details of the individuals. The responses of the individuals were noted and documented.

5.4. ANALYSIS

The results were compared based on their individual responses to the given questionnaire (Brain basis of misophonia) and descriptive analysis was done using SPSS version 25.

VI FINDINGS AND DISCUSSION

The responses of the millennials based on the sounds that are sensitive, consistency of reaction and severity of misophonia were rated on a 5-point Likert scale. The documented responses of the participants were tabulated and then analyzed.

Table 1 ***Sensitive sounds of the sufferer***

Sounds	Mean	Standard deviation
Eating	2.46	1.328
Tapping	2.34	1.334
Rustling	2.26	1.352
Nasal	1.24	1.302
Throat	1.72	1.443
Consonants	0.88	1.256
Environment	2.10	1.432
Others	0.06	0.424

Source: Primary data

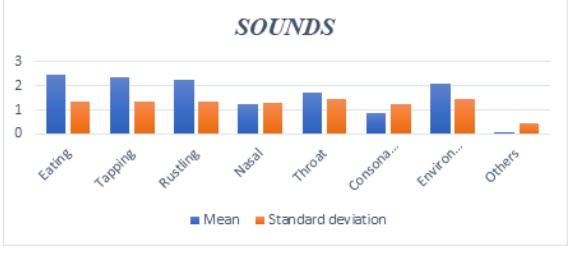

Figure 1 The chart shows the opinion about sensitive sounds of the sufferer

It is significant that sounds associated with eating (i.e., chewing, swallowing, lips smacking, slurping), repetitive tapping with the pen on the table, foot tapping on the floor, rustling the plastic and paper, environment sounds viz, clock ticking, refrigerator humming, chalk piece on the blackboard were considered as the most sensitive sounds that can provokes negative reactions like anger and irritation to the participants. Physiological sounds that are produced during inhalation, exhalation, sniffing, throat clearing, coughing, sounds of ventilation systems, machinery sounds were considered and rated as least sensitive sounds by the participants.

Table 2 ***Reaction to sensitive sounds of the sufferer***

Reactions	Mean	Standard deviation
Depart	2.20	1.294
Avoid situations	2.08	1.291
Cover ears	2.14	1.278
Anxious/ distressed	1.64	1.191
Sad/ depressed	1.26	1.367
Annoyance	1.64	1.191
Violent thoughts	1.30	1.199
Angry	2.04	1.212
Physically aggressive	1.14	1.107
Verbally aggressive	1.48	1.389

Source: Primary data

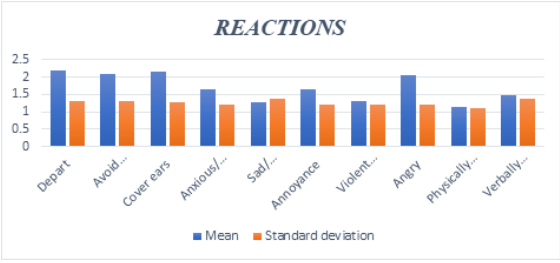

Figure 2 ***The chart depicts the reaction of the participants to sensitive sounds***

Reactions like departing from the environment that causes misophonia to a place where the sounds cannot be heard anymore, covering the ears, avoiding the situations, places, things and/or people in anticipation to those sounds and anger were noted and documented. Other reactions like anxious or distress, annoyance, verbal aggressiveness to others, violent thoughts at the situation, sadness/ depression and physical aggressiveness were also found to be prevailing.

Table 3 ***Severity of Misophonia***

Severity	No. of Individuals
Minimal	12
Mild	13
Moderate	9
Severe	5
Very Severe	11
Total	**50**

Source: Primary data

The above table shows the severity of misphonia among millennials. It is noted that out of fifty millennials, twelve were in minimal state, thirteen in mild, nine in moderate , five in severe and eleven in very severe misophonic severity state.

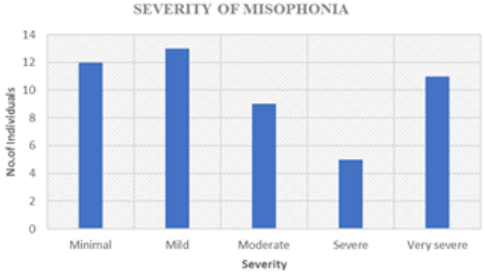

Figure 3 ***The chart shows the severity of Misophonia***

VII CONCLUSION

The sounds that are sensitive to provoke negative reactions, responses to those sounds by the sufferer and the severity of the misophonia

among millennials were noted. Sounds which are very common in the environment provoke certain negative reactions among the misophonics which in turn might affect their quality of life. Hence, misophonics should be identified and given appropriate brain training and listening training. However, it is a lifelong disorder with no cure, but still few management options such as Tinnitus Retraining Therapy (TRT) which is a combination of sound therapy and counseling, helps the misophonics to improve their ability to tolerate the trigger sounds. This is done by introducing some pleasant sounds into the ear canal and by creating positive associations with trigger sounds through practice and intentional rethinking. Another form of therapy which is majorly used in conjunction with TRT is Cognitive Behavioral Therapy. It helps to decrease the negative thoughts of the misophonics by providing some ear level devices with some sounds of rain or nature. Besides these therapies, lifestyle modifications like vigorous exercise, a healthy diet, a regular sleep schedule, sound protection (when needed) and counseling can be provided.

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