



KNOWLEDGE AND ATTITUDE ABOUT MANAGEMENT OF HYPERACUSIS AMONG SPEECH AND HEARING PG STUDENTS

Audiology

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ABSTRACT

Hyperacusis is defined as a reduced tolerance to sounds of average intensity, sometimes accompanied by painful sensitivity to ordinary environmental sounds, with perceptual, psychological, and social dimensions (Stadio et. al, 2018). Common etiologies of Hyperacusis can be associated with various pathologic conditions related to peripheral auditory system as well as central nervous system diseases. Patients with hyperacusis are misdiagnosed to have tinnitus and because of not getting proper assessment the patient having no benefit from the intervention. In the present study, an attempt has made to adapt, modify & validate the Questionnaire developed by Mr. Suman Kumar et. al., (2014) on Awareness of hyperacusis management among hearing health care professionals - a nationwide telephonic survey in to Knowledge and Attitude about management of Hyperacusis among Speech and Hearing PG students in Bengaluru, Karnataka by sending a questionnaire which consist of 15 questions to Speech and Hearing PG students through various online mode. It was found that 84.89% participants were aware about hyperacusis. 86.04 % of participants had correct knowledge about assessment of hyperacusis. 78.48% participants reported correct responses about management of Hyperacusis. Assessment and management of Hyperacusis needs to be done carefully because quality of life is the primary importance in treatment for individual with hyperacusis.

KEYWORDS

Hyperacusis, Counseling, Cognitive behavioral therapy, Tinnitus Retraining Therapy

INTRODUCTION

When sound intolerance becomes part of everyday life it is very difficult and challenging for the patient to lead a quality life, it affects patient's health and day to day life. Hyperacusis can be defined as an abnormally strong reaction to sound occurring within the auditory pathways. At the behavioral level, it is manifested by a patient experiencing physical discomfort as a result of exposure to sound (quiet, medium or loud). The same sound would not evoke a similar reaction in an average listener. The strength of the reaction is controlled by the physical characteristics of the sound, e.g., its spectrum and intensity (Jastreboff and Jastreboff, 2001).

Noise-induced hearing loss frequently identified as key risk factors of hyperacusis as reported by Tyler et. al (2014). Paulin et.al, 2016 reported that those who have hyperacusis are susceptible to conditions like psychiatric illnesses, functional ailments.

In case of children Coelho et al; 2007 reported prevalence of 3.2% in 5–12 years age range. In Swedish adult population, 9.2 % said they had hyperacusis, only 1.9 % reported they had been professionally diagnosed (Paulin, Andersson, & Nordin, 2016).

Characteristics of hyperacusis include hypersensitivity to acoustic stimuli, loudness discomfort, intolerance, phonophobia, misophonia, annoyance, fear, and pain as reported by Tyler et. al (2014).

Diagnosis of hyperacusis can be done through audiometric test and management protocol involves counseling, cognitive behavioral therapy and tinnitus retraining therapy.

Need of the study

Patients with hyperacusis are misdiagnosed to have tinnitus and because of not getting proper assessment the patient having no benefit from the intervention. Quality of life is the primary importance in treatment for individual with hyperacusis. So, it can be hypothesized that for the betterment in the quality of life for individual with hyperacusis it is necessary to assess awareness of hyperacusis management among hearing health care students & professionals. Very few students/professional in India appreciate the significance of assessing and treating Hyperacusis. There is lack of discussion in topics like loudness tolerance, recruitment, and tinnitus among Indian Speech and Hearing students. There are limited literature studies on awareness of hyperacusis management. So, there was need of the study to develop knowledge, attitude towards assessment and management of hyperacusis among Speech and Hearing PG students.

Aim of the Study

The present study aimed at assessing Knowledge and Attitude about Assessment and Management of Hyperacusis in PG students among Speech and Hearing colleges in Bengaluru.

Objective

To adapt, modify & validate the Questionnaire developed by Mr. Suman Kumar et. al., (2014) on Awareness of hyperacusis management among hearing health care professionals - a nationwide telephonic survey into Knowledge and Attitude About assessment and Management of Hyperacusis among Speech and Hearing PG Students in Bengaluru.

Hypothesis

There was no awareness about the assessment and management of Hyperacusis among Speech and Hearing PG Students in Bengaluru.

Methodology

Ethical clearance was obtained on March – April 2021 from the Institutional ethical committee vide clearance number Dr.SRC-BNGRC/T/IEC/131/2021 for carrying out the proposed study.

Procedure: Involved 4 steps

Step 1: Modification of the existing Questionnaire followed by the validation of the questions by experience Audiologists & Speech Language Pathologists.

The questionnaire was adapted from the pre-existing 19 item Questionnaire which was developed by Mr. Suman Kumar et. al., (2014). The modification was based on depending on the need & understanding of the Speech & Hearing PG students on awareness of hyperacusis, assessment and management. Few questions which were not relevant in the need of the students were removed. The questionnaire framed for the current study consist of only the aspects which had a relevance related to the knowledge & attitude of hyperacusis assessment and management among Speech & Hearing PG students.

Validation of the Questionnaire

Modified and shortlisted 15 questions taken from the original questionnaire which consisted 19 items were given to 10 Audiologist & Speech Language Pathologists for content validation and those suggestions were incorporated in the final questionnaire. The final questionnaire (APPENDIX - I) were considered as valid for field testing.

Step 2: Selection of the participants Participants

Sample size was calculated for a qualitative survey in speech and hearing PG student population from Dr. S. R. Chandrasekhar Institute of Speech and Hearing, Bengaluru (Dr. S.R.C.ISH) & Naseema Institute of Speech and Hearing, Bengaluru (NAISH). For the current study population size was 100 and 5% margin of error was fixed, the sample size for this study was 86.

Inclusion criteria

For this study Participants were pursuing Master of Audiology & Speech Language Pathology (MASLP)/ Master of Audiology [M.Sc. (Aud)] in Bengaluru.

Step 3 Data collection

Permission was taken from the principal of Naseema Institute of Speech and Hearing Bangalore for the data collection from their college. Then information Sheet was shared with participants & if they were willing to participate in the study, and informed consent letter for questionnaire study was taken from the participants. A Questionnaire (15 questions) was sent to students amongst these two colleges through various modes like Google form, email / WhatsApp etc.

The responses submitted by the participants were appreciated and included in the final data.

Step 4: Data analysis Scoring

Out of the 15 questions, question number 1, 2, 4, 5, 6, 7, 8, 11, 13 and 14 were polar questions where the answer were given in yes or no only. Question number 3, 9, 10, 12, and 15 were multiple choice questions where four closed set options were allowed and appropriate options had to be selected as the answer. Correct answers were converted in to percentile scores.

Content validity check was done using content validity index. Internal consistency check was done using Cronbach's alpha. Descriptive statistics and frequency tables were reported after data collection. Statistical analysis was done through SPSS software. (Version 20). Microsoft word and Excel have been used to generate table.

RESULTS AND DISCUSSION:

100% participants (n=86) reported yes that they were aware about the term Hyperacusis. Most of the participants i.e. 96.51% (n=83) reported yes, that they can differentiate between tinnitus/ hyperacusis/ phonophobia / misophonia. Maximum number of participants (n=30) i.e. 34.88% have reported that 'Physiological' was the most common cause of Hyperacusis, only 18.6% of Participants (n=16) reported that they were not aware of common etiology of Hyperacusis. Common etiologies of Hyperacusis can be associated with various pathologic conditions related to peripheral auditory system as well as central nervous system diseases (Katzenell and Segal, 2001). When Participants were asked whether hyperacusis may occur with hearing loss (n=73) i.e. 84.88% of participants reported 'Yes' that hyperacusis may occur with hearing loss, only 13 participants i.e. 15.11% reported 'No' that hyperacusis may occur without hearing loss. Majority of participants 87.2% (n=75) agreed that hyperacusis may occur along with Tinnitus & only 11 participants i.e., 12.7% agreed that hyperacusis may not associated with Tinnitus. 65.11% of participants reported that they diagnose tinnitus and hyperacusis in their Institute. Very few participants (n=9) i.e. 10.46% reported yes that they have a separate clinic for patients with tinnitus and hyperacusis in their Institute. 93.02% agreed that if their Institute does not have an established program for hyperacusis, they will be interested in starting the program for hyperacusis in future. When the participants asked about primary source of referral for individual with hyperacusis. 58.13% i.e. 50 participants reported that 'Audiological'. 12 participants i.e. 13.95% have reported that 'Psychological' is the primary referral for individual with hyperacusis. 10 individual i.e. 11.62% of participants reported for each 'Medical' & 'Neurological' as primary source of referral. The primary referral for individual with hyperacusis was to rule out possible disease / disorder. It can be medical referral / psychological referral or Audiological (James W. Hall III 2019). 59.30% participants have reported that both Audiological and Psychological diagnostic protocol has implemented in their Institute for hyperacusis. Baguley and Anderson (2007) reported the diagnostic protocol for hyperacusis. Significant number of participants (n=64) i.e. 74.41% of participants reported yes, when they have asked test for hyperacusis and recruitment is different. When participants were asked which type of management option they will prefer for

hyperacusis 51.16% i.e. (n=44) reported that they will prefer 'Cognitive Behavioral Therapy' as management option for hyperacusis. 31.39% participants reported that they will prefer 'Tinnitus Retraining Therapy' and Tinnitus masking was chosen as management option for hyperacusis by 9.3% of participants (n=8). 6.97% participants (n=6) have reported 'Medical' while only 1.16% i.e. (n=1) participant has reported 'Occupational Therapy' as management option for hyperacusis. According to Pienkowski, M; et al; 2014 role of counseling is essential in management of patients with hyperacusis; counseling is a part of TRT & CBT treatment procedure. 75.58% of participants agreed that management strategies of tinnitus and hyperacusis are different and only 21 participants i.e. 24.41% disagreed to it. 88.37% of participants have reported yes, that they think team approach is important for the management of hyperacusis while only 10 participants i.e. 11.62% disagreed to it. Baguley and Anderson (2007) reported a multidisciplinary approach can be implemented to assess & manage hyperacusis. (39.53%) reported that in a person with both tinnitus and hyperacusis they would prefer to manage both simultaneously. 6 participants (6.97%) were not sure about the management of tinnitus and hyperacusis which one to treat first, when tinnitus & hyperacusis both are co-exist.

Table 1: Response to Individual Questions

Questions	Options	Responses in percentage
Question 1	Yes	100%
	No	-
Question 2	Yes	96.51%
	No	3.48 %
Question 3	Anatomical	17.44 %
	Psychological	24.41%
	Physiological	34.88%
	High blood pressure	4.65%
	Not known	18.6%
Question 4	Yes	84.88%
	No	15.11%
Question 5	Yes	87.2%
	No	12.7%
Question 6	Yes	65.11%
	No	34.88%
Question 7	Yes	10.46 %
	No	89.53 %
Question 8	Yes	93.02%
	No	6.97%
Question 9	Audiological	58.13%
	Medical	11.62%
	Psychological	13.95%
	Neurological	11.62%
	Self reference	4.65%
Question 10	Audiological	38.37%
	Audiological and Psychological	59.30%
	Psychological	-
	Radiological	-
	Therapeutic	2.3%
Question 11	Yes	74.41%
	No	25.58%
Question 12	Tinnitus masking	9.3%
	Tinnitus Retraining Therapy	31.39%
	Cognitive Behavioral Therapy	51.16%
	Medical	6.97%
	Occupational Therapy	1.16%
Question 13	Yes	75.58%
	No	24.41%
Question 14	Yes	88.37%
	No	11.62%
Question 15	Tinnitus	34.88%
	Hyperacusis	18.60%
	Both	39.53%
	Not known	6.97%

Positive Responses were > 50% on the awareness about assessment and management of Hyperacusis in PG students among Speech and Hearing colleges in Bengaluru, so rejecting null hypothesis.

Summary and conclusion

Total 15 questions were adapted and modified to assess awareness (knowledge & attitude), assessment, and management of Hyperacusis in Speech and Hearing students PG students. Question no 1, 2, 3, 4, 5, 6 & 9 were used to assess awareness (knowledge & attitude) about hyperacusis & results indicated that total 84.89% participants were aware about hyperacusis & 15.11% responses were showing lack of awareness about Hyperacusis. For assessment about hyperacusis Question no 10 & 11 were taken and result showed that 86.04 % of participants had correct knowledge about assessment of hyperacusis and only 13.96% of participants reported lack of awareness on assessment of hyperacusis. To investigate about management of hyperacusis total four questions were developed i.e. question no 12, 13, 14 & 15, among participants 78.48% participants reported correct responses about management of Hyperacusis and lesser no of participants i.e. 21.51 % reported incorrect responses.

Limitation of the study:

- Participants were selected from Bengaluru not from whole Karnataka.
- Only Speech and Hearing PG students were considered, other health care professionals were not included in the study.

Acknowledgement

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Footnotes

The authors reports no conflicts of interest in this work.

APPENDIX I

QUESTIONNAIRE

1. Are you aware of the term 'Hyperacusis'?

Yes ☐ / No ☐

2. Do you know the difference between tinnitus/ hyperacusis/ phonophobia/ misophonia?

Yes ☐ / No ☐

3. What do you think about the common etiology of hyperacusis?

a) Anatomical ☐ b) Psychological ☐

c) Physiological ☐ d) High blood pressure ☐ e) Not known ☐

4. Do you think that hyperacusis may occur with Hearing loss?

Yes ☐ / No ☐

5. Do you think that hyperacusis may occur with Tinnitus?

Yes ☐ / No ☐

6. Do you diagnose tinnitus and hyperacusis in your Institute?

Yes / No

7. Do you have a separate clinic for patients with tinnitus and hyperacusis in your Institute?

Yes ☐ / No ☐

8. If your Institute does not have an established programme for hyperacusis, will you be interested in starting the programme in future?

Yes ☐ / No ☐

9. What is your primary referral for individual with hyperacusis?

a) Audiological ☐ b) Medical ☐

c) Psychological ☐ d) Neurological ☐ e) Self reference ☐

10. What sort of diagnostic protocol does your institute implement for hyperacusis?

a) Audiological ☐ b) Audiological and Psychological ☐

c) Psychological ☐ d) Radiological ☐ e) Therapeutic ☐

11. Do you think test for hyperacusis and recruitment is different?

Yes ☐ / No ☐

12. Which type of management option do you prefer for hyperacusis?

a) Tinnitus masking ☐ b) Tinnitus Retraining Therapy ☐

c) Cognitive Behavioral Therapy ☐ d) Medical ☐ e) Occupational Therapy ☐

13. Do you think management strategies of tinnitus and hyperacusis are different?

Yes ☐ / No ☐

14. Do you think team approach is important for the management of hyperacusis?

Yes ☐ / No ☐

15. In a person with both tinnitus and hyperacusis, which one would you prefer to manage first?

a) Tinnitus ☐ b) Hyperacusis ☐

c) Both ☐ d) Not known ☐

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