International Journal of Otorhinolaryngology and Head and Neck Surgery
Semwal A et al. Int J Otorhinolaryngol Head Neck Surg. 2026 Feb;12(1):39-46
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

DOI: https://dx.doi.org/10.18203/issn.2454-5929.ijohns20260063

Original Research Article

Adaptation and validation of the Hindi mini tinnitus questionnaire

Abhishek Semwal*, Srabanti Khemka

Institute of Speech and Hearing, Sri Aurobindo University, Indore, Madhya Pradesh, India

Received: 11 August 2025
Accepted: 06 December 2025

***Correspondence:**
Dr. Abhishek Semwal,
E-mail: abhisheksemwal1@yahoo.com

ABSTRACT

Background: Tinnitus, the perception of sound without an external source, can significantly affect an individual's psychological well-being. However, tools for assessing tinnitus-related distress in the Hindi-speaking adults remain limited. This study aimed to translate, culturally adapt, and validate the mini tinnitus questionnaire (Mini-TQ) into Hindi (MiniTQ-H).

Methods: The Hindi translation of the original Mini-TQ was conducted following standardized guidelines. The study included 60 individuals, comprising of two groups: normal hearing sensitivity with tinnitus (NWT) (n=30) and hearing impairment with tinnitus (HWT) (n=30). Psychometric evaluation of the Hindi MiniTQ was performed, including assessments of internal consistency, test-retest reliability, criterion validity, and concurrent validity. Sensitivity and specificity of the MiniTQ Hindi version were determined using receiver operating characteristic (ROC) curve analysis.

Results: The MiniTQ-H demonstrated excellent psychometric properties. Content validity was confirmed by expert panel consensus, criterion validity demonstrated very strong agreement and Cronbach's alpha for internal consistency was 0.822, indicating good reliability. Test-retest reliability was high, with all items maintaining significant correlations over time. MiniTQ-H showed a strong concurrent validity with THI-H. ROC analysis yielded a cut-off score of 14.5 with high score of 24, demonstrating high diagnostic accuracy in identifying individuals with tinnitus-related distress.

Conclusions: The MiniTQ-H is a culturally and linguistically appropriate tool for assessing tinnitus-related distress in Hindi-speaking individuals aged 18 to 60 years. It provides a reliable and valid measure for clinical and research use in India.

Keywords: Hearing, Hindi, Mini-TQ, Tinnitus, Transadaptation

INTRODUCTION

Tinnitus is defined as a subjective acoustic perception in the absence of any external source.[1] The noises heard or perceived have alternating intensities along with differences in pitch, duration and loudness.[2] Most frequently, tinnitus has been presented as subjective i.e. heard only by the individual, and linked to aberrant neural activity in the auditory system whereas objective tinnitus is rare, audible to others and typically of vascular or muscular origin.[3-5] According to Indian data, prevalence of tinnitus though limited range from 6.7% to 16.8% varying by region and population studied.[6,7] The occurrences of tinnitus may be mostly associated to its multiple etiologies, like ear wax, infections in the middle ear, otosclerosis or cochlear hair cell damage and sometimes it has been reported to be idiopathic in nature.[8]

Majority of people with tinnitus develop severe psychological distress and experience impairment in everyday life, sleep, mood, concentration and daily work.[9,10] The persistent and sometimes intrusive characteristics of tinnitus may lead to great frustration, resulting in hopelessness or helplessness, especially where no cure exists.[11] In addition, Pattyn et al emphasized robust correlations between tinnitus severity

and depression and anxiety symptoms, indicating that psychological variables not only arise from tinnitus but can potentially facilitate its perception as well.[12]

Tinnitus evaluation involves a multidisciplinary approach, combining medical, audiological, and psychological assessments. The self-rating questionnaires are implemented often to study the impact of tinnitus. These questionnaires help in finding out symptoms and tinnitus-related history, and it enables the individual to describe the subjective impact of tinnitus. Self-rating questionnaires should be essentially in the individual's native language in order to measure psychological distress and the resulting quality of life. The clinical outcome measures obtained would be more reliable with the translated instruments because it not only ensures that the information investigated would be better understood by the individual, but would also confirm that the responses are certain, since the individuals have responded in their native language.[13] Tinnitus questionnaire (TQ) assesses various aspects of tinnitus related distress (emotional and cognitive distress, intrusiveness, auditory perceptual difficulties, sleep disturbance and somatic complaints).[1,14] To allow a faster assessment of tinnitus related distress the mini-TQ was developed by Hiller and Goebel.[15] Mini-tinnitus questionnaire (Mini-TQ) retains high reliability, internal consistency, and clinical relevance proving its usefulness across different linguistic and cultural settings.[15] The TQ 12 was validated in Portuguese, Greek, Chinese, Dutch, and Arabic.[16-20] Despite its widespread global use, no validated Hindi version of the Mini-TQ exists. This is a major gap, especially considering that Hindi is the most widely spoken language in India, with over 43% of the population identifying it as their primary language.[21] Yet, most tinnitus research and clinical tools have been developed in English or for western populations, limiting their applicability in Indian contexts.

For this purpose, this study attempted to translate the English version of mini-TQ into Hindi language and furthermore validate among the adults, particularly with and without hearing loss. Thus, the study aimed on translating and validating the mini tinnitus questionnaire to Hindi (MiniTQ-H). The objectives included were to compare the MiniTQ-H scores between individuals with and without hearing loss, and to explore the effect of gender in tinnitus related distress using MiniTQ-H.

METHODS

The present research study has an analytical cross sectional study design. A total 60 participants in the age range of 18 to 60 years (mean age: 37.31 and standard deviation: 11.34) were included in the present study based on inclusion and exclusion criteria. Participants who met the criteria for the study were selected, and a written informed consent was obtained from each participant. The participants were divided into two groups: group I consisted of 30 participants with hearing sensitivity within normal limits (≤25 dBHL) with tinnitus (NWT) age range 18 to 60 years; group II: this group consisted of 30 participants with hearing impairment (>25dBHL) with tinnitus (HWT) age range 18 to 60 years. The participants completed the questionnaires as a routine clinical practice. Written informed consent was collected from all participants.

Inclusion criteria

Subjects were required to have normal hearing sensitivity (≤25 dB HL) for group I (NWT) and hearing impairment (>25 dB HL) for group II (HWT), as confirmed by a certified audiologist recognized by the Rehabilitation Council of India (RCI), along with a diagnosis of unilateral or bilateral subjective tinnitus. Participants of both genders and could have either continuous or intermittent tinnitus in one or both ears, with a minimum tinnitus duration of one month prior to enrolment were considered. Additional inclusion criteria required the ability to read Hindi and willingness to provide valid informed consent before participating in the study.

Exclusion criteria

Participants with a history or complaint of cognitive impairment, neurological disorders, or psychiatric illness were excluded from the study. Additionally, individuals who had previously undergone tinnitus retraining therapy (TRT) were excluded to avoid potential bias in the assessment of tinnitus-related distress.

Procedure

The study was based on following stages:

Stage 1: Translation of mini tinnitus questionnaire in Hindi (by using standard Translation method).

Stage 2: Administering mini tinnitus questionnaire in Hindi (Mini TQ-H) on participants with tinnitus (with hearing loss and without hearing loss) to obtain the test score.

Stage 3: Validation of mini tinnitus questionnaire in Hindi.

Stage 4: Checking the reliability of Hindi version of mini tinnitus questionnaire.

Stage 5: Cut-off scoring using receiver operating characteristics (ROC) curve.

Stage 1: translation of mini TQ in Hindi

Forward translation

Firstly, the questionnaire was translated from English to Hindi by five native speakers of Hindi, with high level of

proficiency in English and Hindi for conceptually equivalent translation.

Comparison of translated version of Mini TQ-Synthesis I

After the forward translation a panel comprising of five professionals (three audiologists and two Hindi teacher) analysed the original version and translated versions of the questionnaire. Individuals directly involved in translation process were not included in the panel. In this phase one version of the questionnaire in Hindi was created.

Blind back translation

The Hindi translated questionnaire was back translated from Hindi to English to check intactness of meaning by five native Hindi speakers with high level of proficiency in Hindi language.

Comparison of the two translated version of the mini TQ-synthesis II

A panel of five experts being native Hindi speakers (audiologist and speech language pathologist) then compared the original and the back translated versions of the questionnaire. The original and the back-translated version (English) was evaluated for equivalence. The equivalence and similarity of the original and the back-translated version of mini TQ was checked by administering both the versions of questionnaire on 10 adults (age range 18 to 60 years) with tinnitus. The rating of each statement and total scores obtained on both the questionnaires were taken into consideration to determine the equivalence of the translated questionnaire. The semantics, grammar and adaptation to Hindi culture and language were analysed to create one version of the scale.

Preparation of final tool

The final version of transadapted mini tinnitus questionnaire in Hindi (MiniTQ-H) was developed systematically, comprising of 12 items categorized into four subscales that address core domains of tinnitus-related distress: emotional and intrusiveness, cognitive distress, sleep disturbance, and negative effects on social relationships. To establish content validity of the translated questionnaire, expert evaluation was conducted by three native Hindi-speaking audiologists using a 3-point Likert scale to assess the cultural appropriateness, clarity, relevancy of each item. All the 12 items met the 80% agreement criterion, thereby supporting content validity of Hindi version of MiniTQ.

Pilot study

The questionnaire (Mini TQ-H) was administered on twenty participants having history of tinnitus with and without hearing following a written consent from the participants. These participants were not considered in the core study. The suggestions given by these participants were included in the final Hindi version of Mini TQ (for dialect variation and linguistic validation). Time taken for the administration of the developed transadapted MiniTQ-H was approximately 10-12 minutes based on the pilot study.

Stage 2: Administering Mini Tinnitus questionnaire in Hindi (Mini TQ-H) on participants with tinnitus (with hearing loss and without hearing loss)

The developed transadapt MiniTQ-H was given to all the participants of the present study for self-rating. The participants were prior informed regarding the transadapted MiniTQ-H being administered for the purpose of research and were briefed about the MiniTQ-H questions. Participants were asked to read the questions carefully and circle the appropriate rating in 3-point Likert scale and the rating option was explained to all participants. Any clarification requested by the participants was provided by the researcher. Time provided to each participant was 15-20 minutes for completing their rating.

Stage 3: Validation of Mini Tinnitus questionnaire in Hindi

To establish the validity of mini tinnitus questionnaire Hindi version (MiniTQ-H), the total scores from the 12-item MiniTQ-H were statistically correlated with scores from the tinnitus handicap inventory in Hindi (THI-H). The THI-H was administered individually to Hindi-speaking adults with tinnitus, aged between 18-60 years, using a 3-point Likert scale for scoring. Validity, which reflects the degree to which a test measures what it claims to measure, was assessed by comparing the MiniTQ-H with previously validated tools. For criterion validity, the original English version of the mini TQ and the translated MiniTQ-H were both administered to the same group of participants, and Pearson correlation analysis was conducted to evaluate the relationship between their total scores. The significant correlation between the MiniTQ-H and both the original mini TQ and THI-H supported the criterion and concurrent validity of the Hindi version of the questionnaire.

Stage 4: Checking the reliability of Hindi version of mini tinnitus questionnaire

The reliability of the mini tinnitus questionnaire Hindi version (MiniTQ-H) was assessed through statistical analysis using Cronbach's alpha to evaluate internal consistency reliability. Cronbach's alpha was calculated for all 12 items of the questionnaire, providing an estimate of the questionnaire's homogeneity. Internal consistency reflects the extent to which items within the scale are correlated, indicating that they measure the same underlying construct. In addition, item-total correlation coefficients were computed to further support the internal consistency of the tool. To examine test-retest

reliability, the MiniTQ-H was administered to a group of 10 Hindi-speaking adults with tinnitus, aged 18-60 years. The same participants completed the questionnaire again after a 15-day interval. The responses from the two administrations were compared, and the correlation between the two sets of scores was analysed to determine the stability of the questionnaire over time. The results confirmed that the MiniTQ-H demonstrated acceptable levels of both internal consistency and test-retest reliability.

Stage 5: cut-off scoring using receiver operating characteristics (ROC) curve

Receiver operating characteristic (ROC) curve analysis was performed to determine the optimal cut-off score, evaluate the diagnostic accuracy of the MiniTQ-H, and estimate its sensitivity and specificity.

RESULTS

A total sample of 60 participants was included in the study, of which 30 were in group I (NWT) and 30 were in group II (HWT). It took participants about 10 to 12 minutes to read and mark their answers in the questionnaire without any assistance.

Demographic characteristics

Group I (NWT) had a mean age of 34.30 years (SD=10.69), with ages ranging from 19 to 59 years, and consisted of 47% males and 53% females. Group II (HWT) comprised an equal number of males and females (50%) and had a mean age of 40.33 years (SD=11.35). The distribution of tinnitus characteristics among participants in group I (NWT) and group II (HWT) was as follows: for tinnitus laterality, bilateral tinnitus was reported by 66.7% of participants in group I and 53.3% in group II, whereas unilateral tinnitus was reported by 33.3% in group I and 46.7% in group II. Considering the temporal pattern of tinnitus, continuous tinnitus was reported by 43.3% of participants in group I and 86.7% in group II, whereas intermittent tinnitus was reported by 56.7% in group I and 13.3% in group II.

Reliability analyses

Cronbach's alpha was employed to evaluate the internal consistency of the MiniTQ-H. Greater internal consistency among the items is shown by the higher Cronbach alpha value, indicating that the items are dependently assessing the same underlying construct. In the present study Cronbach alpha's value of mini tinnitus questionnaire Hindi (MiniTQ-H) was α=0.822 which indicated a good internal consistency. The item-total correlations for the MiniTQ-H ranged from 0.379 to 0.654, indicating that all items showed acceptable levels of consistency with the overall scale and contributed meaningfully to the measurement of tinnitus-related distress as shown in Table 1. Test-retest reliability analysis of the MiniTQ-H showed strong consistency across all 12 items, with Pearson correlation coefficients ranging from 0.773 to 1.000 ($p<0.01$). Items 1, 4, 9, and 10 demonstrated perfect correlations ($r=1.000$, $p<0.001$), while Item 7 showed the lowest, yet acceptable, reliability ($r=0.773$, $p=0.009$), indicating high temporal stability.

Table 1: Mean, standard deviations, and variance of the MiniTQ-H.

	Mean	SD	Item-total correlation
1. I am aware of the noises from the moment I get up to the moment I sleep	1.75	0.43	0.489
2. Because of the noises I worry that there is something seriously wrong with my body	1.37	0.66	0.560
3. If the noises continue my life will not be worth living	0.87	0.85	0.654
4. I am more irritable with my family and friends because of the noises	1.22	0.76	0.391
5. I worry that the noises might damage my physical health	1.30	0.64	0.484
6. I find it harder to relax because of the noises	1.12	0.76	0.528
7. My noises are often so bad that I cannot ignore them	1.05	0.74	0.430
8. It takes me longer to get to sleep because of the noises	1.02	0.74	0.414
9. I am more liable to feel low because of the noises	1.15	0.75	0.644
10. I often think about whether the noises will ever go away	1.52	0.56	0.379
11. I am a victim of my noises	1.57	0.50	0.506
12. The noises have affected my concentration	1.28	0.71	0.513

Item-total correlations were corrected for the individual contribution of each item.

Validity analyses

Criterion validity was assessed by calculating the Pearson correlation coefficient between the total scores of the MiniTQ-H and the original MiniTQ, revealing a very strong positive correlation ($r=0.989$, $p=0.000$). Concurrent validity was evaluated by computing the Pearson correlation coefficient between the MiniTQ-H and the THI-Hindi, which also showed a strong positive correlation ($r=0.740$, $p=0.014$). Based on both criterion

and concurrent validity measures MiniTQ-H indicated a strong validity.

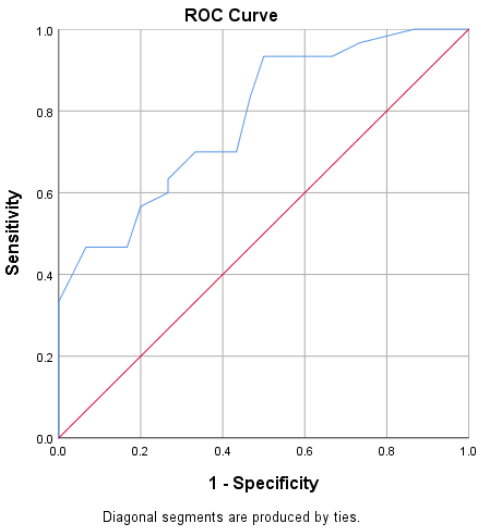

Figure 1: ROC curve for MiniTQ-H.

Sensitivity and specificity

Receiver operating characteristic (ROC) test was used to define the cutoff point, specificity, and sensitivity for MiniTQ-H. As seen in Figure 1, the area under the curve of the MiniTQ-H was 0.782 (95% confidence interval: 0.69-0.89, p=0.000). The optimal cutoff point of the MiniTQ-H was 14.5 with a sensitivity of 70% and specificity of 66.7%.

Comparison between group I (NWT) and group II (HWT)

Analysis of MiniTQ-H scores between groups showed a greater tinnitus related distress (Z=-3.764, p<0.001) for participants grouped as hearing impairment with tinnitus. Additionally, the same group depicted a higher subscale score (intrusiveness and emotional, cognitive, and negative effect on social relationship) in group comparison. However, no significant difference was found in sleep disturbance subscale between the groups, indicating a similar experience regardless of hearing status as depicted in Table 2.

Table 2: Mean, SD and p values for MiniTQ-H subscales.

Domain	Descriptive statistics					Mann Whitney U test		
	Groups	Mean	SD	Min	Max	Mean rank	Z	P value
Intrusiveness and emotional distress	Group I	7.63	2.47	3.00	12.00	22.40	-3.610	0.000*
	Group II	10.40	2.78	4.00	14.00	38.60		
Cognitive distress	Group I	3.46	1.33	2.00	6.00	24.82	-2.575	0.010*
	Group II	4.43	1.50	1.00	6.00	36.18		
Sleep disturbance	Group I	0.86	0.73	0.00	2.00	27.23	-1.556	0.120
	Group II	1.16	0.74	0.00	2.00	33.77		
Negative effects on social relationship	Group I	1.00	0.74	0.00	2.00	25.73	-2.275	0.023*
	Group II	1.43	0.72	0.00	2.00	35.27		

*Significant at p<0.05

Table 3: Mean, SD and p values for gender comparison between groups.

Group	Descriptive Statistics					Mann Whitney U test		
	Gender	Mean	SD	Minimum	Maximum	Mean rank	Z value	P value
Group I	F	14.63	3.40	8.00	20.00	19.31	-2.551	0.010*
	M	11.07	3.32	8.00	17.00	11.14		
Group II	F	17.87	4.32	10.00	23.00	16.23	-0.459	0.653
	M	17.00	4.42	9.00	23.00	14.77		

*Significant at p<0.05

Across gender comparison

A statistically significant difference was observed in MiniTQ-H scores between males and females for group I (NWT). Whereas, group II (HWT) showed no statistically significant difference in MiniTQ-H scores between genders, as represented in Table 3.

DISCUSSION

The present study aimed to translate, culturally adapt, and validate the mini tinnitus questionnaire in Hindi (MiniTQ-H) for use among Hindi-speaking adults. Reliability analysis revealed excellent internal consistency, item-total correlation and high test-retest reliability, indicating that the MiniTQ-H items measure the construct consistently and stably over time. The

internal consistency values are in line with the original MiniTQ developed by Hiller and Goebel, which reported Cronbach's alpha values ranging from 0.87 to 0.90 across different clinical populations.[15] The observed results also align with findings from international studies that validated MiniTQ versions in Portuguese, Italian, Turkish, Dutch, and Greek languages all of which reported high internal consistency and strong psychometric robustness.[13,16,17,19,22] This consistency across languages supports the cross-cultural adaptability of the MiniTQ framework. The validity of the MiniTQ-H was confirmed through its strong positive correlation with the tinnitus handicap inventory-Hindi (THI-H), suggesting that both tools measure overlapping constructs of tinnitus-related distress. Similar associations have been reported in prior validation studies, including Zeman et al, who found high congruence between the original MiniTQ and THI scores, reinforcing the utility of MiniTQ as a brief yet effective assessment tool and Vanneste et al found good concurrent validity between MiniTQ and tinnitus handicap questionnaire, further confirming that MiniTQ provides an efficient and psychometrically sound estimation of tinnitus burden.[19,23] Furthermore, ROC curve analysis yielded an area under the curve (AUC) of 0.782 for the MiniTQ-H, indicating good diagnostic accuracy. The identified cut-off score of 14.5 demonstrated adequate sensitivity (0.700) and specificity (0.667), making it a clinically useful threshold for identifying individuals experiencing significant tinnitus-related distress. These values fall within the acceptable range for screening tools and support the clinical applicability of the MiniTQ-H in Hindi speaking adults with and without hearing loss. Thus, the findings of the study demonstrate that the MiniTQ-H is a good psychometrical tool for assessing tinnitus-related distress, showing strong evidence of reliability and validity across multiple statistical measures.

The comparative analysis of MiniTQ-H scores showed significantly greater tinnitus-related distress in adults experiencing tinnitus with hearing impairment (group II) compared to those with normal hearing (group I), highlighting the amplified psychological burden when tinnitus coexists with hearing loss. Group II reported notably higher distress in the subscales of intrusiveness and emotional distress, cognitive distress, and negative effects on social relationships, whereas sleep disturbance scores were similar across both groups, suggesting that sleep disruption is independent of hearing status. These results are consistent with prior studies indicating that hearing loss intensifies tinnitus severity due to the dual sensory challenge and its impact on emotional regulation, cognition, and social interaction.[24-27] The lack of group difference in sleep disturbance aligns with Meikle et al, who found that sleep issues are more closely tied to tinnitus loudness or distress rather than hearing ability.[28]

The gender-wise comparison of tinnitus-related distress in both groups revealed notable patterns. Among participants with tinnitus and normal hearing sensitivity (group I), females reported significantly higher levels of distress compared to males. This suggests that women with tinnitus but without hearing loss may perceive the condition as more intrusive or emotionally overwhelming. Such findings align with previous studies indicating that females tend to exhibit greater emotional reactivity and psychological sensitivity to tinnitus, potentially due to higher anxiety levels or emotional vulnerability.[29,30] In contrast, within the hearing-impaired group (group II), no significant difference in tinnitus-related distress was observed between males and females. This points to the possibility that when hearing loss coexists with tinnitus, the distressing experience may be uniformly intense across genders. The dual burden of auditory deficit and persistent tinnitus may overshadow any gender-based perceptual or emotional differences, leading to a more homogeneous distress profile among affected individuals.

One limitation of the study is that the sample was restricted to a specific age range and clinical setting, which may limit generalizability. Future research should explore the applicability of the MiniTQ-H in broader community-based and diverse demographic contexts, including varying education levels and rural populations. Additionally, longitudinal studies could assess its responsiveness to intervention over time.

CONCLUSION

The findings of this study replicate and extend those from prior cross-cultural validation efforts, further establishing the MiniTQ as a reliable and valid tool for international use. The MiniTQ-H fills a critical gap in the availability of standardized tinnitus distress measures for Hindi-speaking populations, where culturally and linguistically appropriate tools remain limited.

In conclusion, the MiniTQ-H demonstrates strong psychometric properties, supporting its use as a valid, reliable, and time-efficient tool for assessing tinnitus-related distress in Hindi-speaking adults. The tool effectively distinguishes levels of distress between individuals with and without hearing loss, underscoring the greater psychological impact of tinnitus in the presence of hearing impairment. Additionally, gender-specific differences in distress were evident only among participants with normal hearing, suggesting that hearing loss may equalize the burden of tinnitus across genders. It holds promise for clinical screening, monitoring therapeutic outcomes, and facilitating research in Hindi speaking adults with and without hearing loss.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Hallam RS, Rachman S, Hinchcliffe R. Psychological aspects of tinnitus. In: Rachman S,

ed. Contributions to medical psychology. Vol. 3. Pergamon Press; 1984:31-53.
2. Han BI, Lee HW, Kim TY, Lim JS, Shin KS. Tinnitus: characteristics, causes, mechanisms, and treatments. J Clin Neurol. 2009;5(1):11-9.
3. Michiels S, van der Wal AC, Nieste E, Van de Heyning P, Braem M, Visscher C, et al. Conservative therapy for the treatment of patients with somatic tinnitus attributed to temporomandibular dysfunction: study protocol of a randomised controlled trial. Trials. 2018;19(1):554.
4. Ralli M, Greco A, Turchetta R, Altissimi G, de Vincentiis M, Cianfrone G. Somatosensory tinnitus: Current evidence and future perspectives. J Int Med Res. 2017;45(3):933-47.
5. Park SN. Objective tinnitus. Hanyang Med Rev. 2016;36(2):99-108.
6. Thirunavukkarasu K, Geetha C. One-year prevalence and risk factors of tinnitus in children with otological problems. Int Tinnitus J. 2015;19(2):33-8.
7. Aryal S, Sharma Y, Prabhu P. Prevalence of tinnitus and its characteristics among Indian adult population. Ann Otol Neurotol. 2022;5(01):015-20.
8. Crummer RW, Hassan GA. Diagnostic approach to tinnitus. Am Fam Phys. 2004;69(1):120-6.
9. Davis A, Rafaie EA. Medical and surgical evaluation and management of tinnitus. Tinnitus Handbook. San Diego, USA: Singular Pub; 2000.
10. Gopinath B, McMahon CM, Rochtchina E, Karpa MJ, Mitchell P. Risk factors and impacts of incident tinnitus in older adults. Ann Epidemiol. 2010;20(2):129-35.
11. Bhatt JM, Bhattacharyya N, Lin HW. Relationships between tinnitus and the prevalence of anxiety and depression. Laryngoscope. 2017;127(2):466-9.
12. Van den Bergh O, van den Houte M, Bogaerts K, Van Oudenhove L. Relationship between symptom perception distortion as assessed in different experimental paradigms in patients with functional disorders. 6th Annual Scientific Conference of the European Association of Psychosomatic Medicine (EAPM 2018), Verona, Italy. 2018.
13. Moschen R, Fioretti A, Eibenstein A, Natalini E, Cuda D, Chiarella G, et al. Validation of the Italian Tinnitus Questionnaire Short Form (TQ 12-I) as a brief test for the assessment of Tinnitus-related distress: results of a cross-sectional multicenter-study. Front Psychol. 2018;9:65.
14. Hallam RS. TQ: Manual of the Tinnitus Questionnaire. Polpresa Press; 2008.
15. Hiller W, Goebel G. Rapid assessment of tinnitus-related psychological distress using the Mini-TQ. Int J Audiol. 2004;43(10):600-4.
16. Cerejeira R, Cerejeira J, Paiva S, Gonçalves P, Firmino H, Quartilho M, et al. The Portuguese version of Mini-Tinnitus Questionnaire: brief screening test for assessment of tinnitus-induced stress. Otol Neurotol. 2009;30(1):112-5.
17. Panagiotopoulos G, Galanakis M, Varvogli L, Chrousos G, Darviri C. Validation of the Greek version of mini tinnitus questionnaire as a brief screening test for assessment of tinnitus-related distress: our experience in 301 adult patients. Clin Otolaryngol. 2015;40(4):363-9.
18. Chi Shan Kam A. A screening tool for tinnitus-related distress- the chinese version of mini tinnitus questionnaire: our experience in one hundred and fourteen adult patients. Clin Otolaryngol. 2012;37(3):234.
19. Vanneste S, Plazier M, Van Der Loo E, Ost J, Meeus O, Van de Heyning P, et al Validation of the Mini-TQ in a Dutch-speaking population: a rapid assessment for tinnitus-related distress. B-ENT. 2011;7(1):31.
20. El Beaino M, Eter E. Arabic validation of the tinnitus handicap inventory and the mini-tinnitus questionnaire on 100 adult patients. Clin Otolaryngol. 2018;43(1):377-82.
21. Registrar General of India. Census of India 2011. Government of India. 2011.Available from: https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/unpd_201510_egm-s2-chandramouli_presentation.pdf. Accessed on 8 July 2025.
22. Gürses E, Müjdeci B, Aksoy S. Psychometric data for the reliability and validity of the mini tinnitus questionnaire Turkish version (TQ 12-T). ENT Update. 2020;10(2):340-8.
23. Zeman F, Koller M, Schecklmann M, Langguth B, Landgrebe M, TRI Database Study Group. Tinnitus assessment by means of standardized self-report questionnaires: psychometric properties of the tinnitus questionnaire (TQ), the tinnitus handicap inventory (THI), and their short versions in an international and multi-lingual sample. Health Qual Life Outcomes. 2012;10(1):128.
24. Andersson G, Airikka ML, Buhrman M, Kaldo V. Dimensions of perfectionism and tinnitus distress. Psychol Health Med. 2005;10(1):78-87.
25. Zöger S, Svedlund J, Holgers KM. Relationship between tinnitus severity and psychiatric disorders. Psychosomatics. 2006;47(4):282-8.
26. Weisz N, Hartmann T, Dohrmann K, Schlee W, Norena A. High-frequency tinnitus without hearing loss does not mean absence of deafferentation. Hear Res. 2006;222(1-2):108-14.
27. Henry JA, Dennis KC, Schechter MA. General review of tinnitus: Prevalence, mechanisms, effects, and management. J Speech Lang Hear Res. 2005;48(5):1204-35.
28. Meikle MB, Stewart BJ, Griest SE, Henry JA. Tinnitus outcomes assessment. Trends Amplif. 2008;12(3):223-35.
29. Erlandsson SI, Holgers KM. The impact of perceived tinnitus severity on health-related quality of life with aspects of gender. Noise Health. 2001;3(10):39-51.

30. Bartels H, Pedersen SS, Van Der Laan BFAM, Staal MJ, Albers FWJ, Middel B. The impact of type D personality on health-related quality of life in tinnitus patients is mainly mediated by anxiety and depression. Otol Neurotol. 2010;31(1):11-8.

Cite this article as: Semwal A, Khemka S. Adaptation and validation of the Hindi mini tinnitus questionnaire. Int J Otorhinolaryngol Head Neck Surg 2026;12:38-46.