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Translation, Cross-Cultural Adaptation, and Validation of the Eustachian Tube Dysfunction Patient Questionnaire for Assessing Eustachian Tube Dysfunction in Greece

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Background and Objectives: Eustachian tube dysfunction (ETD) is prevalent among patients with ENT disorders, necessitating history-taking, clinical examination, and appropriate investigation for diagnosis. Eustachian Tube Dysfunction Patient Questionnaire (ETDQ-7) is a valuable tool for subjectively assessing symptom severity related to this condition. This study aims to adapt and validate the ETDQ-7 in Greece, ensuring its accuracy and efficacy in outpatient settings. **Subjects and Methods**: The ETDQ-7 was translated into Greek following established methodology. Data were collected from 75 Greek patients diagnosed with ETD and 25 control patients without ETD. Participants completed the adapted ETDQ-7 and underwent a clinical examination, with statistical analysis correlating with their ETDQ-7 responses. Statistical analyses were performed to determine the questionnaire's reliability and validity. **Results**: Internal consistency and item analyses were performed to validate the questionnaire. Face and content validity were confirmed, and patients found the questionnaire easy to administer and complete. Test-retest reliability demonstrated similar internal consistency and a strong correlation between individual items and the total score. Discriminative validity revealed a statistically significant difference between the two patient groups, supporting the usefulness of the Greek version of ETDQ-7 in confirming the diagnosis of ETD. **Conclusions**: The Greek version of ETDQ-7 proves to be safe and effective for diagnosing ETD in Greek-speaking populations, complementing various investigative methods. **J Audiol Otol 2025;29(1):13-21**

Keywords: Eustachean tube dysfunction; ETDQ-7; Validation; Cultural adaptation.

Introduction

Eustachian tube dysfunction (ETD) stands as a prevalent condition characterized by disturbances in middle ear ventilation, potentially leading to symptoms like ear fullness, pain, and hearing impairment. Effective diagnosis and management of ETD require a comprehensive understanding of the condition. The Eustachian Tube Dysfunction Patient Questionnaire (ETDQ-7), a well-established tool for evaluating ETD symptoms, has demonstrated its utility in diverse cultural settings [1-3]. However, its suitability and applicability within the Greek population remain unexplored. The Greek context introduces unique factors, encompassing language intricacies, cultural norms, and distinct healthcare practices, which can potentially influence the questionnaire's performance and relevance. Therefore, this study seeks to undertake the cultural adaptation and validation of the ETDQ-7 for assessing ETD among the Greek populace [4]. This has been the case in various different countries, that after careful validation and cultural adaptation of this questionnaire, clinicians and researchers are using the revised versions to assess ETD.

The cultural adaptation process encompasses a thorough consideration of the Greek language, cultural idiosyncrasies, and healthcare norms to ensure the questionnaire's clarity and pertinence. This entails linguistic translation, customization of examples, and adjustment of response options to align with Greek cultural nuances. Collaborative efforts with cultural advisors and experts within the field of otolaryngology were

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integral throughout this process to guarantee the questionnaire's cultural appropriateness [5].

In the validation phase, rigorous assessment of the adapted questionnaire's psychometric properties is conducted, including evaluations of reliability and validity. Internal consistency, test-retest reliability, construct validity, and criterion validity are scrutinized to ascertain the questionnaire's performance within the Greek context. Comparative analyses involving clinical assessments, physical examination findings, and patient-reported outcomes are undertaken to gauge the acceptability, clarity, and comprehensibility of the culturally adapted questionnaire among Greek individuals suffering from ETD.

Subjects and Methods

Ethical considerations

The study was performed in the outpatient as well as emergency department of a tertiary university hospital in Greece. Patients were also recruited from the preoperative assessment unit waiting to have their surgery.

All patients were thoroughly informed about the methods and the aim of the study and were given written consent to complete before entering the research study. The study itself is investigating diagnostic approaches of UTD and did not involve any alteration of treatment, any new medication or placebo branch which was reassuring for all participants. However, ethical approval from the institutional review board "Committee of Bioethics and Deontology" of the hospital was obtained (Reference number 130/2023 of the named tertiary university hospital in Greece) to ensure compliance with local guidance and policies.

Linguistic validation and cultural equivalence

The ETDQ-7 was translated into Greek following a forward-backward translation process (Supplementary Materials in the online-only Data Supplement). Two independent bilingual translators translated the questionnaire into Greek. An expert linguist in cooperation with otolaryngology doctors reviewed the translations to ensure linguistic and cultural equivalence. Cognitive interviews were conducted with a sample of Greek-speaking patients with ETD to assess the comprehension and cultural relevance of the questionnaire items. The participants were recruited from outpatient clinics and completed the questionnaire. Their feedback was collected through structured interviews to assess the acceptability, comprehensibility, and ease of completion of the questionnaire. The data from the pilot testing phase were not included in the final analysis but provided valuable insights for the adaptation process. Based on the feedback, minor modifications were made to improve the clarity and cultural appropriateness of the questionnaire. For example, the "popping in the ears" symptom was easily directly translated into Greek in contrast with "clogged" ears that needed an extended translation and modification to be fully understood in Greek (Fig. 1) [1]. Then, content validity was calculated and the expert panel rated all the items of the adapted questionnaire as relevant and comprehensive, with an average content validity index (CVI) of 0.92.

Study participants

Data for the main study were collected from a larger sample

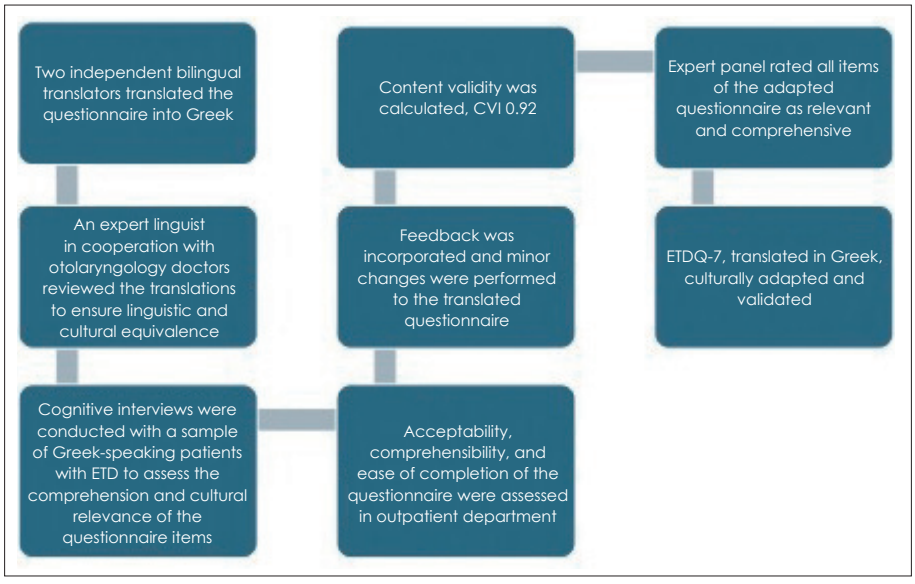

Fig. 1. Process of translation, cultural adaptation, and validation of ETDQ-7 in Greece. ETDQ-7, Eustachian Tube Dysfunction Patient Questionnaire; ETD, Eustachian tube dysfunction; CVI, content validity index.

of 75 Greek patients diagnosed with ETD and 25 patients who did not have ETD and served as a control group. The participants completed the adapted ETDQ-7 and underwent a clinical examination conducted by otolaryngologists specialized in ETD. The clinical examination involved assessing clinical signs with endoscopic examination such as retracted tympanic membrane, and tympanometry to evaluate middle ear function. All patients that were included in the study had no relevant ear past medical history, no previous operations or significant ENT pathology that could affect the clinical examination findings. The ETD group was all adults who experienced long-term ETD symptoms (>6 weeks of ETD related symptoms), received no medications recently, and had no relevant surgical interventions in the past. The patients with ETD were diagnosed with the condition based on the above specified criteria. The ETD symptoms are specified as prolonged sensation of blocked ears, muffled hearing, clogged ears, pain under water, pain while flying, tinnitus as well as worsening symptoms while having a cold. We appreciate that there is some overlap with the questions of ETDQ-7; however, it is global practice to assess ETD with subjective questions during history taking as well as clinical examination. For this reason, we included thorough clinical examination with otoscopy and flexible nasoendoscopy as well as tympanometry to ensure we have all related data available for comparison. All 75 patients that were included in the ETD group had conformed ETD symptoms as well as either retracted tympanic membrane or a type C tympanogram. In addition to that, we performed tubomanometry as a tubomanometre is available in our department that showed abnormal parameter R for all patient in the group of ETD. Undeniably, ETD is a difficult diagnosis that requires a multifactorial approach and combination of history and clinical findings is essential to establish this diagnosis. The control group were again all adults with no ENT related symptoms, no ear pathology diagnosed and no relevant surgical intervention in the past. This group had no ETD complaints and their examination as well as tubomanometry was normal [2]. Inclusion and exclusion criteria can be seen in Table 1.

Statistical analysis of data

Statistical analysis was conducted to assess the psychometric properties of the adapted ETDQ-7 and its correlation with the clinical examination findings. Descriptive statistics were calculated to summarize the demographic characteristics of the sample of 75 Greek patients diagnosed with ETD. All statistical analysis was performed using RStudio statistical analysis software Version 2023.06.1+524 (RStudio, Boston, MA, USA) and all graphs were created using the same software.

Results

In order to ensure correct statistical analysis for validation of the translated and culturally adapted ETDQ-7 in Greek, all tests mentioned in similar studies in the literature were performed in this study. Two sample t-test, internal consistency, test-retest reliability, and contrast validity were performed to ensure the questionnaire can be safely and efficiently used in the Greek population.

The mean age of the test group was 45.2 years (SD=8.7), with a range of 30 to 60 years. In terms of gender distribution, 35 participants (46.7%) were male and 40 participants (53.3%) were female (Table 2). Also, statistical analysis of each question of the questionnaire as well as overall performance of both control and test group was conducted (Tables 3 and 4) showing statistically significant difference between the two groups. A Welch two sample t-test was applied between the means of both groups that showed a *p*-value of 0.0008321 (95 percent confidence interval: -2.661734–1.023980) which shows a statistically significant difference between the two groups

Table 1. Inclusion and exclusion criteria

	Inclusion criteria	Exclusion criteria
ETD group	Age >18 years old	Previous ENT surgery
	ETD symptoms >6 weeks	Severe ear pathology (cholesteatoma etc.)
	No ENT surgery previously	Adenoid hypertrophy
	No recent medication applied	Postnasal space lesion
	Retracted tympanic membrane and/or type C tympanogram	
Control group	Age >18 years old	Previous head and neck area radiotherapy
	No ETD symptoms	Congenital abnormalities
	No ENT surgery previously	Temporomandibular joint dysfunction
	No recent medication applied	

ETD, Eustachian tube dysfunction

reflecting the usefulness of the translated and culturally adapted ETDQ-7 questionnaire to diagnose ETD in Greek patients.

Internal consistency reliability of the adapted questionnaire was evaluated using Cronbach's alpha coefficient. Cronbach's alpha is used to calculate the internal consistency and reliability for a set of items in a questionnaire or a survey. It is therefore the indicated test to assess ETDQ-7. The numbers vary from 0 to 1 and the higher the number the better the consistency and reliability of the questionnaire. In our case, the Cronbach's alpha coefficient calculated was 0.83, indicating good internal consistency among the questionnaire items as well as overall (Fig. 2). By applying Cronbach's alpha to the ETDQ-7 questionnaire responses, researchers and clinicians can gauge the internal consistency and reliability of the questionnaire's items in measuring the diverse aspects of ETD experiences. A high Cronbach's alpha value indicates strong coherence among the questionnaire items, signifying that the ETDQ-7 effectively captures the multidimensional nature of this disorder's effects on patients. This analytical approach not only bolsters the validity of the questionnaire but also enhances our comprehension of the intricacies of ETD and its impact on individuals' wellbeing.

In addition, item analysis was performed to identify any problematic items that may be affecting the overall reliability of the questionnaire. After thorough review and analysis process completed, there were no items with low item-total correlation or low factor loadings in factor analysis that should have been examined or even removed. All 7 questions of the questionnaire were found to be appropriate and efficient to correlate them with patient symptoms.

Test-retest reliability was also assessed in 30 patients of the ETD group that came back to reassess their symptoms after 3 months of initial presentation, before they had their operation. The timings were reflecting their initial presentation and their preoperative date which were 3 months apart on average. The test-retest reliability for this group was satisfactory, calculating the Spearman rank correlation coefficient which resulted in 0.92. This confirms good correlation between the two questionnaires completed by these patients twice with a 3-month interval, before they had any intervention, either conservative or surgical (Fig. 3).

Table 2. Demographics of study groups

Variable	Control group (n=25)	Test group (n=75)
Age, mean±SD (range)	21.0±2.1 (18–24)	45.2±8.7 (30–60)
Male:Female	17 (68):8 (32)	35 (46.7):40 (53.3)

Table 4. ETDQ-7 overall answers

Statistics	Overall control group	Overall test group
Mean	1.46	3.15
Median	1.5	2.9
Standard deviation	0.32	0.81
% with >14 score*	0%	100%

*A score of >14 on the ETDQ-7 indicates Eustachian tube dysfunction. ETDQ-7, Eustachian Tube Dysfunction Patient Questionnaire

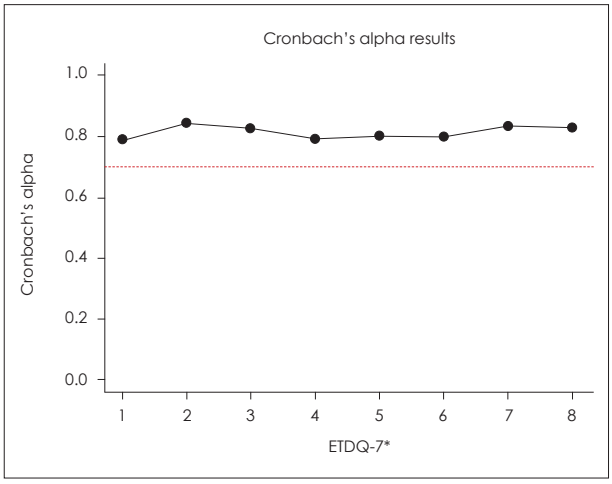

Fig. 2. Internal consistency for each item as well as overall for the Greek version of Eustachian Tube Dysfunction Patient Questionnaire (ETDQ-7). *ETDQ-7: 1, pressure in ears; 2, otalgia; 3, blocked sensation; 4, deterioration when cold/sinusitis; 5, crackling and popping; 6, tinnitus; 7, muffled hearing; 8, overall.

Table 3. ETDQ-7 questions mean answers

Questions of ETDQ-7	Control group mean	Test group mean	*p*-value
Pressure in the ears?	2.1	3.1	<0.001
Pain in the ears?	1.9	2.6	<0.001
Ears "clogged" or underwater?	1.6	4.2	<0.001
Ear symptoms of cold or sinusitis?	1.4	3.9	<0.001
Crackling or popping sounds in ears?	1.5	4.5	<0.001
Ringing in the ears?	1	2.1	<0.001
Muffled hearing?	1.4	3.4	<0.001

ETDQ-7, Eustachian Tube Dysfunction Patient Questionnaire

Construct validity was assessed by examining the correlation between the scores of the adapted ETDQ-7 and the clinical examination findings. The correlation analysis revealed a significant positive association (r=0.72, p<0.001) between the scores on the adapted questionnaire and the severity of ETD symptoms as assessed by the clinical examination. This indicates that higher scores on the adapted ETDQ-7 are associated with more pronounced ETD symptoms observed during the clinical examination (Table 5). Please note that abnormal otoscopy findings in the control group represent tympanosclerosis or a "hazy" tympanic membrane but no relevant signs of Eustachian tube dysfunction.

These statistical findings support the validity of the adapted questionnaire for assessing ETD symptoms and suggest that it aligns with clinical evaluations.

Fig. 4 illustrates the correlation between the adapted ETDQ-7 scores and the clinical examination findings. The scatter plot displays a positive linear relationship, where higher scores on the questionnaire correspond to a greater severity of symptoms observed in the clinical examination. The trend line indicates the positive correlation between the two variables, further supporting the construct validity of the adapted questionnaire.

Discussion

ETD background

ETD is a prevalent condition characterized by a wide array of symptoms and underlying pathologies, posing challenges in its accurate diagnosis and effective management. This scientific article highlights the diversity of ETD symptoms that lead to diagnostic ambiguity as well as lack of a gold standard diagnostic tool to determine the presence of the condition. Scientists have been trying to develop a single objective diagnostic method of the condition; however, there is no consensus to our knowledge in the current literature. Diagnosis depends on the preference, experience as well as equipment machinery in each ENT department. Our article also emphasizes the significance of symptoms-led questionnaires in quantifying patient symptoms and guiding clinicians towards an appropriate diagnosis. Specifically, we explore the ETDQ-7, a valuable tool that reflects ETD complaints and quantifies common patient presenting concerns. Additionally, we highlight the need for objective measurement tools in ETD diagnosis and provide an in-depth review of the existing clinical tests. Furthermore, we present the cultural adaptation and validation of ETDQ-7 in the Greek healthcare setting, discussing its potential impact on ETD management and future research opportunities.

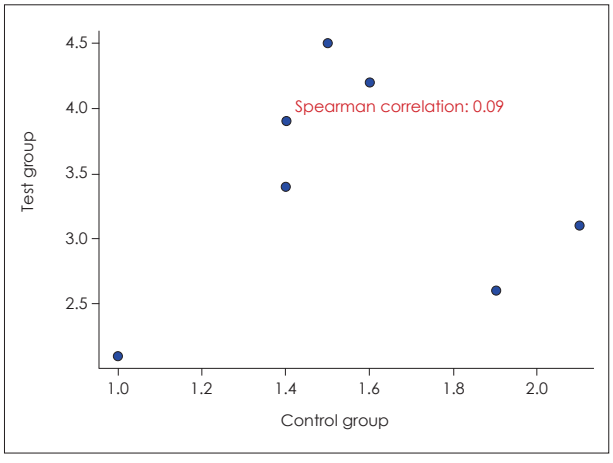

Fig. 3. Spearman rank correlation.

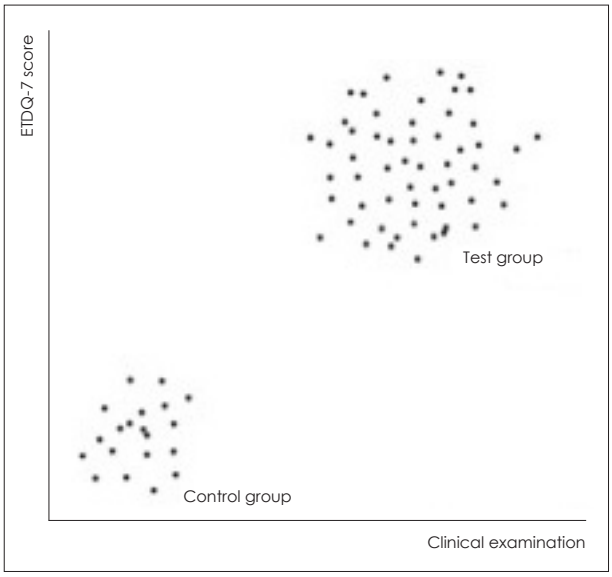

Fig. 4. Correlation between adapted ETDQ-7 scores and clinical examination findings. ETDQ-7, Eustachian Tube Dysfunction Patient Questionnaire.

Table 5. Examination findings and clinical signs

	Otoscopy		Tympanometry	
	Normal	Abnormal	Normal	Abnormal
Control group (n=25)	21 (84)	4 (16)	24 (96)	1 (4)
Test group (n=25)	5 (20)	20 (80)	3 (12)	22 (88)

Diagnostic challenges of ETD and symptoms-led questionnaires

ETD remains a challenging condition to diagnose due to its diverse symptomatology and various underlying factors. Accurate diagnosis and effective management are essential to alleviate the impact of ETD on patients' quality of life. The role of symptoms-led questionnaires in this context has become increasingly crucial, aiding clinicians in assessing subjective symptoms and guiding personalized treatment decisions. Symptoms-led questionnaires as well as quality of life questionnaires are considered a significant tool to quantify patients' symptoms and guide the clinician towards a diagnosis. They are useful to quantify patients' complaints, assess severity and consistency of symptoms and possibly measure improvement after a conservative or surgical option. They are also efficient in documenting appropriately the patient's history and can be possibly used for research purposes in an inclusion/exclusion criteria setting [2,3]. ETDQ-7 is a symptom led questionnaire that reflects ETD complaints and quantifies the most common patient presenting concerns being part of the above category questionnaires. It has gained prominence for its practicality and reliability in evaluating ETD symptoms. This comprehensive discussion explores the significance of ETDQ-7, reviews the existing clinical tests for ETD, addresses the need for objective measurement tools, and presents the cultural adaptation and validation of ETDQ-7 in the Greek healthcare setting.

In current clinical practice, a combination of tests, including tympanometry, audiometry, otoscopy, flexible nasoendoscopy and pressure maneuvres such as Valsalva, modified Valsalva, Toynbee, Frenzel, or Politzer test are often employed to diagnose ETD. While these tests yield valuable information, their lack of consensus as a definitive diagnostic tool underlines the necessity for other relevant objective measurement techniques. In other words, the existence of various tests demonstrates the lack of a tool that determines the existence of the ETD diagnosis and alarms the ENT specialists about the need to invent one [4,5]. To complement subjective assessment and improve the precision of ETD diagnosis and management, researchers are actively exploring innovative approaches like tubomanometry, sonometry, or ultrasound sonometry of the Eustachian tube [6,7].

The ETDQ-7 questionnaire as an adjunct to diagnose ETD

The ETDQ-7 questionnaire, devised by McCoul, et al. [8] in 2012, consists of seven questions, each specifically correlated with distinct ETD symptoms. Patients provide ratings on a scale from 1 to 7, offering valuable insights into the nature and intensity of their complaints. It was firstly developed based on the lack of tools in the current literature by employing a focus group with healthy or ETD patients and validity, internal consistency, and test-retest reliability were assessed before it was widely implemented. By capturing the most common patient presenting concerns related to ETD, ETDQ-7 emerges as a reliable tool for assessing subjective symptoms, significantly enhancing the accuracy of ETD diagnoses.

Challenges that the original version of ETDQ-7 is facing

While the ETDQ-7 questionnaire remains a commonly used tool for assessing ETD, it is essential to acknowledge certain limitations associated with its application. Some studies have raised concerns about its sensitivity and specificity, suggesting that it may have difficulty in effectively distinguishing individuals with ETD from those without. Additionally, there can be ambiguities in how respondents interpret the questionnaire's questions, introducing an element of subjectivity. Of particular note is its challenge in differentiating between patients with Eustachian tube obstruction and those with patulous Eustachian tube, which holds significance in treatment decisions. There is ongoing discussion about ETD with patulous and non-patulous Eustachian tube, with those that have a non-patulous one to be good candidates for balloon dilatation, while those with patulous one experience significant deterioration of their symptoms if they undergo this operation [9,10]. It is, therefore, evident that patulous and non-patulous ETD is a diagnosis under consideration and there is a lot of discussion regarding establishing a gold-standard diagnostic tool to guide management and treatment options [11]. Despite these limitations, it is important to recognize that the ETDQ-7 continues to be a valuable instrument in ETD assessment, with a substantial body of evidence supporting its utility. However, it may benefit from complementary diagnostic approaches to ensure accurate and comprehensive evaluation in clinical practice. In any case, its vast use across the world required validation and cultural adaptation in Greece in an attempt to adopt international protocols and assessments regarding ETD diagnosis and treatment.

Cultural adaptation of ETDQ-7

It is evident that cultural adaptation is pivotal to ensure the applicability of questionnaires in diverse populations. In this project, the research team successfully adapted and validated ETDQ-7 for use in the Greek healthcare setting, preserving its core structure while tailoring it to the Greek cultural context. A comprehensive study involving 75 patients demonstrated good internal consistency and construct validity, supporting the reliability of the adapted ETDQ-7 in assessing ETD symp-

toms among the Greek population.

The incorporation of the adapted ETDQ-7 in the Greek healthcare setting holds significant promise in improving the evaluation and management of ETD patients. By incorporating patient-reported symptoms, clinicians can gain a comprehensive understanding of each patient's unique condition, facilitating personalized treatment plans. Additionally, ETDQ-7 can serve as a valuable tool in monitoring treatment outcomes and assessing the effectiveness of interventions. Our results show that it is safe and effective to use the translated and adapted ETDQ-7 within the Greek population. We found that the Greek ETDQ-7 is considered understandable and easy to complete by our patients, and its interpretation is considered effortless by the ENT specialists. Internal consistency reliability of the adapted questionnaire using Cronbach's alpha coefficient was found appropriate and contrast validity showed good correlation of the questionnaire results and symptoms as well. The use of the adapted ETDQ-7, along with clinical examination, can enhance the evaluation and management of ETD in the Greek healthcare setting, allowing for a more comprehensive assessment of symptoms and treatment outcomes. This is consistent with current literature and up-to-date studies that use the ETDQ-7 as a tool to diagnose subjective ETD, with significant limitations regarding its objectivity [12-15].

Strengths and limitations of the study

The current study demonstrates both strengths and limitations in the evaluation of the ETDQ-7 questionnaire for diagnosing ETD in Greece. A significant strength lies in the robust statistical analysis, which yielded a strong Cronbach's alpha test result, indicating high internal consistency within the questionnaire. Furthermore, the correlation between questionnaire results and clinical examination findings supports the reliability and relevance of the ETDQ-7. Additionally, positive feedback regarding the questionnaire's user-friendly nature underscores its potential as an adjunct tool for ETD diagnosis in everyday ENT practice. However, the study is not without limitations.

While this study provides valuable insights into the adaptation and validation of the ETDQ-7 questionnaire in the Greek ENT context, it is important to acknowledge several limitations commonly encountered in surgical research. First and foremost, the relatively small sample size, limited to a single ENT department, poses a potential limitation. Small sample sizes can impact the generalizability of findings to a broader population, and the inclusion of participants from diverse healthcare settings would strengthen the study's external validity. Additionally, the lack of sample heterogeneity within this single-center study may introduce selection bias, as patients seeking care at academic medical centers may have unique characteristics compared to those in primary care or private practice settings. Furthermore, the study's single-center design may limit the generalizability of the results to a broader healthcare context, emphasizing the need for multicenter studies across various clinical settings. Lastly, while efforts were made to culturally adapt the questionnaire, language and cultural nuances could still influence participant responses, potentially affecting the questionnaire's performance. Another statistical limitation is considered to be the lack of exploratory and confirmatory factor analysis according to our reviewers. These limitations should be considered when interpreting the study's outcomes and underscore the importance of further research to address these constraints comprehensively in the context of surgical studies.

Additional limitations related to the ETDQ-7 itself warrant consideration. This questionnaire is symptom-based as already mentioned, serving as a supplementary tool to assess ETD. However, it lacks the ability to differentiate between patulous and non-patulous ETD, significantly restricting its diagnostic utility. The distinction between patients with patulous and non-patulous Eustachian tubes is pivotal for tailoring their management. Research indicates that patients with non-patulous ETD are more likely to benefit from Eustachian tube balloon dilation compared to those with patulous ETD, underscoring the importance of precise diagnosis in treatment decisions [11]. Failing to correctly identify the type of ETD may result in potential harm, as demonstrated in recent studies on Eustachian tube balloon dilation [16]. Therefore, healthcare practitioners should exercise caution when employing the ETDQ-7 to assess ETD patients and should use a combination of diagnostic methods rather than solely relying on questionnaire results.

Future prospects

In terms of future prospects, while ETDQ-7 provides valuable subjective data, the quest for objective measurement tools in ETD diagnosis persists. Researchers are actively exploring novel diagnostic techniques and objective measurement tools to complement the subjective assessment offered by ETDQ-7. Future studies with larger sample sizes and longitudinal data can offer further insights into the reliability and validity of ETDQ-7 in diverse populations. In addition, novel technology based on physics and scientific methodology is expected to support ETD diagnosis and management to ensure better quality of life for patients that suffer from this entity.

Symptoms-led questionnaires, particularly the ETDQ-7, have emerged as practical and reliable means to assess sub-

jective ETD symptoms, enhancing the accuracy of ETD diagnoses. However, the need for objective measurement tools remains a priority in advancing ETD diagnosis and management. The successful cultural adaptation and validation of ETDQ-7 in the Greek healthcare setting demonstrate its potential applicability in this population. As research progresses to explore innovative diagnostic techniques, ETDQ-7 remains a valuable platform for patients to express their symptoms and contribute to the improvement of ETD management. By embracing ETDQ-7 and continuing research efforts, clinicians can strive towards more accurate ETD diagnoses and enhance patient care, ultimately improving the lives of those affected by this complex and challenging condition.

Conclusion

The findings of this study have important implications for clinical practice and research in Greece. A culturally adapted and validated ETDQ-7 will provide a standardized and reliable tool for assessing ETD symptoms and their impact on Greek patients' quality of life. It will enhance accurate diagnosis, treatment planning, and monitoring of ETD in the Greek healthcare setting.

In conclusion, the ETDQ-7 has previously been validated in English, German, Dutch, Portuguese, Arabic, and Danish demonstrating good clinical relevance [16]. The Greek translation of the ETDQ-7 has produced similar results to the rest of the translations. This article presents the process of cultural adaptation and validation of the ETDQ-7 questionnaire for use in Greece. The findings contribute to the growing body of research on cross-cultural measurement instruments and highlight the importance of considering cultural factors in assessing ETD symptoms. The culturally adapted and validated ETDQ-7 questionnaire will serve as a valuable tool for healthcare professionals and researchers in the Greek context, facilitating better understanding and management of ETD.

Supplementary Materials

The online-only Data Supplement is available with this article at https://doi.org/10.7874/jao.2024.00087.

Conflicts of Interest

The authors have no financial conflicts of interest.

Author Contributions

Conceptualization: Sofia Anastasiadou, George Psillas. Data curation: Sofia Anastasiadou, George Psillas. Formal analysis: Sofia Anastasiadou, George Psillas. Investigation: Sofia Anastasiadou, George Psillas. Methodology: all authors. Project administration: George Psillas, Petros Karkos, Stefanos Triaridis, Jannis Constantinidis. Resources: Sofia Anastasiadou. Software: Sofia Anastasiadou. Supervision: George Psillas, Petros Karkos, Stefanos Triaridis, Jannis Constantinidis. Validation: George Psillas, Petros Karkos, Stefanos Triaridis, Jannis Constantinidis. Visualization: Sofia Anastasiadou. Writing—original draft: Sofia Anastasiadou. Writing—review & editing: George Psillas, Petros Karkos, Stefanos Triaridis, Jannis Constantinidis. Approval of final manuscript: all authors.

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