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Turkish Validation of the Psychosocial Impact of Gingival Aesthetics Questionnaire

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Abstract

Background: The aim of this study was to translate, culturally adapt, and validate the Turkish version (TR) of the Psychosocial Impact of Gingival Aesthetics Questionnaire (PIGAQ), resulting in the PIGAQ-TR. The study also aimed to assess the psychometric properties of the scale, including its reliability, validity, and underlying subdimensions, to ensure its suitability for use among Turkish-speaking populations.

Methods: This cross-sectional validation study included 225 individuals who completed the original 20-item PIGAQ after it was translated into Turkish using forward and backward translation techniques in accordance with standard cross-cultural adaptation guidelines. The scale retained its original 4-dimensional structure: gingival self-confidence, social impact, psychological impact, and aesthetic concern (AC). Data were analyzed using descriptive statistics, exploratory factor analysis (EFA), internal consistency assessment via Cronbach's alpha, and test–retest reliability. The EFA was used to verify the dimensional structure of the translated scale.

Results: The PIGAQ-TR demonstrated excellent internal consistency, with a Cronbach's alpha of 0.950 (95% CI: 0.939-0.959), indicating high reliability. Test–retest reliability was acceptable, with an intraclass correlation coefficient of 0.604 (95% CI: 0.273-0.807, $P = .001$). The EFA supported the 4-factor model, which explained 76.82% of the total variance, confirming the validity of the scale's conceptual framework.

Conclusion: The PIGAQ-TR is a valid and reliable instrument for evaluating the psychosocial effects of gingival aesthetics in Turkish-speaking populations. Its strong psychometric properties make it suitable for use in clinical research and practice, contributing to a better understanding and management of patients' ACs.

Keywords: Aesthetics, factor analysis, oral health, reproducibility of results, surveys and questionnaires

What is already known on this topic?

- *The Psychosocial Impact of Gingival Aesthetics Questionnaire (PIGAQ) is a validated tool originally developed to assess the psychosocial effects of gingival appearance.*
- *Aesthetic concerns related to gingival display can significantly affect individuals' self-esteem, social interactions, and psychological well-being.*
- *Cross-cultural adaptation and validation are essential steps to ensure the reliability and validity of psychological instruments in different languages and cultural contexts.*

What does this study add to the existing knowledge?

- *This study provides the first validated Turkish version of the PIGAQ (PIGAQ-TR), enabling its use among Turkish-speaking populations.*
- *The PIGAQ-TR demonstrated strong psychometric properties, including high internal consistency and structural validity, confirming its suitability for clinical and research settings in Türkiye.*
- *By confirming the 4-factor structure in the Turkish context, the study supports the cross-cultural robustness of the original PIGAQ framework.*

INTRODUCTION

An attractive smile requires a harmonious balance between white aesthetics, pertaining to the teeth, and pink aesthetics, which involve the surrounding gingival tissues. Gingival parameters such as the shape and contour of the gingiva, the position of the free gingival margins and zeniths, gingival color and pigmentation, papillary height and position, as well as the presence of inflammation, scalloping, or recession, play a significant role in determining overall aesthetic outcomes. Even subtle irregularities in the gingival margin or signs of inflammation, particularly in the anterior region,

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can negatively affect smile aesthetics. Minor details, such as zenith position or papilla height, influence tooth alignment and the emergence profile. A slight papillary loss that results in the appearance of a "black triangle" may disrupt smile harmony and compromise aesthetic results.[1]

Improving gingival architecture often requires an interdisciplinary approach, incorporating periodontics, prosthodontics, orthodontics, endodontics, and, in some cases, oral surgery. Importantly, the patient must also be considered an integral part of the treatment team.[1] Understanding the patient's perspective is crucial for achieving successful esthetic outcomes, as perceived needs and priorities often differ from clinical evaluations. Therefore, assessing the psychosocial impact of gingival esthetics in relation to sociodemographic variables is essential. Such assessments help dental professionals align treatment planning with patient expectations and improve overall satisfaction. Psychosocial function refers to an individual's ability to speak, smile, and engage in social or professional interactions without experiencing discomfort or embarrassment. Research exploring the psychosocial impact of gingival appearance should take a prominent role in advancing dental science and patient-centered care.[2]

Several validated instruments have been developed to assess the psychosocial impact of dental aesthetics, including the Psychosocial Impact of Dental Aesthetics Questionnaire,[3] the Oral Health Impact Profile–Aesthetic Component,[4] the Social Appeal Index,[5] the Orofacial Aesthetic Scale,[6] and the Social Appeal Scale.[7] However, the Psychosocial Impact of Gingival Aesthetics Questionnaire (PIGAQ) is currently the only validated tool specifically designed to measure the psychosocial effects of gingival aesthetics. The PIGAQ consists of 20 items distributed across 4 subscales: gingival self-confidence (GSC), social impact (SI), psychological impact (PI), and aesthetic concern (AC).[8]

This study aimed to translate, culturally adapt, and validate the Turkish version of the PIGAQ (PIGAQ-TR) for use among Turkish-speaking populations. It was hypothesized that the PIGAQ-TR would retain the original instrument's 4-dimensional structure and demonstrate acceptable levels of reliability and validity. Given the absence of a gingival aesthetics-specific tool in Turkish, this adaptation is essential to support future psychosocial research and clinical assessment in this context.

MATERIALS AND METHODS

Data Collection

This cross-sectional validation study included individuals aged 18 and older who were receiving outpatient dental care and were able to understand and complete the Turkish version of the prepared questionnaire. Individuals who had undergone periodontal therapy in the preceding 6 weeks were not included in the study. Ethical approval for the study was obtained from the İstanbul University-Cerrahpaşa Clinical Non-Interventional Research Ethics Committee (Approval No.: 2024/257, dated December 4, 2024). All procedures were conducted in accordance with the principles outlined in the Declaration of Helsinki, and written informed consent was obtained from each participant prior to data collection.

The original questionnaire comprised 20 items. Following common guidelines, a sample size between 5 and 10 times the number of items is recommended for factor analysis.[9] In this study, with 225 participants, the subject-to-item ratio was 11.25, exceeding the recommended minimum, thus providing sufficient power for exploratory factor analysis (EFA).

Data were collected between January 20 and June 2, 2025, using an online survey hosted on the SoSci Survey platform. Of the 645 patients invited, 259 agreed to participate. After excluding 34 incomplete responses, 225 participants completed the questionnaire and were included in the final analysis. For the test–retest reliability analysis, a separate subsample of 30 participants was initially selected; however, only 24 of them completed both test sessions and were included in the final reliability analysis.

To reduce potential bias, participants were recruited through a convenience sampling method from patients visiting the periodontology outpatient clinic. After routine clinical examination, only those who met the inclusion criteria were invited to participate, and the survey link was shared with them. Although participation was voluntary and may have introduced self-selection bias, this was minimized by applying a standardized recruitment process.

Translation Process

The scale items were initially forward-translated from the original English version into Turkish by S.K. (periodontist). This translation was subsequently reviewed and approved by 2 independent reviewers (S.B. - pediatric dentist, D.B. - prosthodontist), and revisions were made based on their feedback. After finalizing the Turkish version, a back-translation into English was carried out by a separate individual (SK1 - nonprofessional). During the back-translation process, items GSC 6 and SI 5 were found to have discrepancies compared to the original versions. The translated scale (Supplementary Table 1) was then pilot-tested on a sample of 30 participants and assessed for test–retest reliability. Following this preliminary evaluation, the finalized scale was administered to the target population.

The Psychosocial Impact of Gingival Aesthetics Questionnaire Scale

The first section of the questionnaire collected demographic data including age and gender. The second section consisted of 20 items divided into 4 subscales: AC (3 items), GSC (6 items), SI (7 items), and PI (4 items). This final 20-item

version is a culturally and linguistically adapted Turkish version of the original instrument.

A 5-point Likert scale is used, ranging from 1=not at all to 5=very strongly.[10] To calculate the total score, the 6 items in the GSC subscale, which include positively worded statements, were reverse scored. This was done using the formula (6 − x), where x is the original response given on the 5-point Likert scale. For example, a response of 5 was converted to 1 (6 − 5=1). This reverse scoring was applied only to the positively framed GSC items, since higher scores in the other subscales already reflect greater negative psychosocial impact.

While the original version of the instrument used a 0-4 Likert scale and subsequently applied a transformation by subtracting 1 from all scores, this study employed a 1-5 Likert scale. Therefore, no further transformation was applied in the current version, and the scoring was retained in its original form.

Statistical Analysis

After conducting the test–retest reliability analysis with a subsample of 24 participants using the intraclass correlation coefficient (ICC), EFA was performed on the main dataset (N=225) (IBM Corp, 2019. IBM SPSS Statistics for Windows. Version 26.0, IBM Corp, Armonk, NY.) to examine the underlying factor structure of the PIGAQ-TR. Before conducting the EFA, the adequacy of the dataset was evaluated using the Kaiser–Meyer–Olkin (KMO) statistic and Bartlett's Test of Sphericity.[11,12] Following EFA, internal consistency reliability was assessed using Cronbach's alpha coefficients for each subscale and for the total scale, confirming the scale's reliability.[13]

RESULTS

Descriptive Statistics and Exploratory Factor Analysis

A total of 871 patients attended the outpatient clinic during the study period. Of these, 645 met the eligibility criteria and were invited to participate. Among the invited, 259 agreed to join the study; however, 34 participants did not complete the questionnaire and were excluded from the final analysis. Therefore, 225 participants fully completed the questionnaire and were included in the final analysis. Reasons for nonparticipation included lack of interest, time constraints, or inability to complete the online survey. Participants who did not complete the questionnaire were excluded from the analysis, resulting in no missing data for the variables of interest. The study sample consisted of 138 females and 87 males. Regarding age distribution, 182 participants were between 18 and 25 years old, while 43 participants were between 25 and 40 years old.

The KMO test value is 0.933, which means the data are suitable for factor analysis. A value above 0.90 shows that the sample size is good and the variables are related. Bartlett's Test of Sphericity is significant ($P < .001$), which means the variables have enough correlation to run factor analysis. So, the results show that factor analysis can be done on this data.

Although 3 factors had eigenvalues greater than 1, the original structure of the scale was based on 4 factors. Therefore, the number of factors was restricted to 4 in the analysis, in line with the theoretical framework and original scale design. This approach was adopted to preserve construct validity and ensure consistency with the underlying theoretical model.

An EFA was performed to examine the underlying factor structure of the PIGAQ-TR. The extraction method used was Principal Component Analysis, and the number of factors was predetermined and fixed to 4, based on the theoretical structure of the original PIGAQ and the aim of preserving its subscale configuration (Table 1).

The analysis yielded 4 factors with eigenvalues greater than or close to 1, cumulatively explaining 76.82% of the total variance. The first factor (SI) had an eigenvalue of 10.310, accounting for 51.55% of the total variance, indicating a strong primary component. The second factor, GSC, had an eigenvalue of 2.884, explaining 14.42%, while the third factor, AC, had an eigenvalue of 1.189, contributing 5.95% of the variance. The fourth factor, PI, with an eigenvalue of

Table 1. Rotated Factor Loadings for the PIGAQ-TR Based on Exploratory Factor Analysis. This table displays the factor loadings of each item on the 4 extracted factors: SI, GSC, AC, and PI. Loadings above 0.50 are considered meaningful, supporting the 4-factor structure of the scale

Variable	Factor I (SI)	Factor II (GSC)	Factor III (AC)	Factor IV (PI)
SI2	0.851			
SI7	0.830			
SI3	0.789			
SI1	0.774			
SI6	0.755			
SI5	0.726			
SI4	0.697			
GSC3		0.854		
GSC1		0.808		
GSC5		0.793		
GSC6		0.776		
GSC2		0.705		
GSC4		0.677		
AC2			0.827	
AC3			0.779	
AC1			0.648	
PI1				0.631
PI2				0.577
PI3				0.519
PI4				0.693

AC, aesthetic concern; GSC, gingival self-confidence; PI, psychological impact; PIGAQ-TR, Psychosocial Impact of Gingival Aesthetics Questionnaire-Turkish Version; SI, social impact.

Table 2. Factor Structure of the PIGAQ-TR Based on Exploratory Factor Analysis. The table presents the initial eigenvalues, percentage of variance explained by each factor, and the cumulative variance. The 4-factor model explains 76.82% of the total variance, supporting the structural validity of the Turkish version

Factor	Initial Eigenvalue	% Variance Explained	Cumulative %
1	10.310	51.55	51.55
2	2.884	14.42	65.97
3	1.189	5.95	71.91
4	0.981	4.91	76.82

PIGAQ-TR, Psychosocial Impact of Gingival Aesthetics Questionnaire-Turkish Version.

0.981, explained an additional 4.91%, bringing the total variance explained to 76.82% (Table 2).

Reliability of the Items, Dimensions, and Complete Scale

Cronbach's alpha and corrected item-total correlations were used to assess the internal consistency of the PIGAQ scale and its subscales. The overall PIGAQ scale demonstrated excellent reliability, with a Cronbach's alpha of 0.950 (95% CI: 0.939-0.959), indicating high internal consistency across all items.

Gingival self-confidence, with 6 items, demonstrated strong internal consistency (Cronbach's alpha = 0.918). Item-total correlations ranged from 0.677 (GSC4) to 0.846 (GSC3). Deleting any item did not significantly improve reliability, with Cronbach's alpha if item deleted between 0.892 and 0.915 (Table 3).

SI, consisting of 7 items, showed excellent reliability (Cronbach's alpha = 0.937). Item-total correlations ranged from 0.753 (SI6) to 0.828 (SI3 and SI8). Cronbach's alpha if item deleted ranged between 0.923 and 0.930, supporting the scale's consistency (Table 3).

PI included 4 items and had good internal consistency (Cronbach's alpha = 0.884). Item-total correlations varied from 0.719 (PI6) to 0.789 (PI3). Deleting items resulted in Cronbach's alpha between 0.836 and 0.864, indicating all items contribute well (Table 3).

AC, with 3 items, showed excellent reliability (Cronbach's alpha = 0.936). Item-total correlations were 0.803 (AC1) and 0.902 (AC2, AC3). Removing AC2 or AC3 lowered reliability (0.879), while removing AC1 increased it to 0.956, suggesting AC1 is less consistent than the others (Table 3).

The initial sample consisted of 30 participants, of whom 24 completed the questionnaire again after 14 days. The results

Table 3. Item-Total Correlations and Cronbach's Alpha Values for PIGAQ-TR Subscales. The table shows corrected item-total correlations and the effect of item deletion on Cronbach's alpha. All subscales demonstrated high internal consistency. The total scale reliability was excellent (α = 0.950). Removal of AC1 increased alpha, suggesting it may lower internal consistency

Item	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha for the Dimension	Cronbach's Alpha for the PIGAQ-TR Scale
GSC (6 items)			0.918	0.950 (95% CI: 0.939-0.959)
GSC1	0.759	0.904		
GSC2	0.753	0.905		
GSC3	0.846	0.892		
GSC4	0.677	0.915		
GSC5	0.803	0.898		
GSC6	0.776	0.902		
SI (7 items)			0.937	
SI1	0.768	0.929		
SI2	0.828	0.923		
SI3	0.820	0.925		
SI4	0.770	0.929		
SI5	0.753	0.930		
SI6	0.793	0.927		
SI7	0.828	0.924		
PI (4 items)			0.884	
PI1	0.752	0.849		
PI2	0.789	0.836		
PI3	0.738	0.855		
PI4	0.719	0.864		
AC (3 items)			0.936	
AC1	0.803	0.956		
AC2	0.902	0.879		
AC3	0.902	0.879		

AC, aesthetic concern; GSC, gingival self-confidence; PI, psychological impact; PIGAQ-TR, Psychosocial Impact of Gingival Aesthetics Questionnaire-Turkish Version; SI, social impact.

Table 4. Test–Retest Reliability of the PIGAQ-TR and Its Subscales (n = 24)

Subscale	ICC (Single Measures)	95% CI	Cronbach's Alpha	Significance (*P*)
GSC	0.698	0.417-0.857	0.822	<.001
SI	0.422	0.031-0.701	0.594	.018
PI	0.582	0.241-0.795	0.735	.001
AC	0.383	−0.016 to 0.676	0.553	.030
Total PIGAQ-TR	0.604	0.273-0.807	0.753	.001

AC, aesthetic concern; GSC, gingival self-confidence; ICC, intraclass correlation coefficient; PI, psychological impact; PIGAQ-TR, Psychosocial Impact of Gingival Aesthetics Questionnaire-Turkish Version; SI, social impact.

indicated satisfactory test–retest reliability, demonstrating the temporal stability of the instrument (Table 4).

DISCUSSION

The psychological and SIs of gingival aesthetics have not yet been thoroughly investigated, and to date, the PIGAQ remains the only validated instrument specifically designed to assess these effects.[8] The aim of this study is to carry out the Turkish validation of this novel scale. This will provide a valuable tool for evaluating the outcomes of periodontal treatments and for assessing the psychosocial impact of periodontal conditions on patients. However, due to the lack of other instruments specifically targeting the psychological and social dimensions of gingival aesthetics, it has not been possible to directly compare the findings with those obtained from other scales.

The PIGAQ is a very recent validated scale developed to specifically assess perceptions related to gingival aesthetics.[2,8] It consists of 4 distinct subscales, each targeting a unique aspect of the psychosocial impact of gingival appearance. The first subscale, GSC, captures the positive emotional effects associated with gingival aesthetics, emphasizing the importance of measuring how attractive gingiva can enhance emotional well-being. The SI subscale contains items that evaluate how individuals perceive their gingival appearance negatively and the social challenges that arise from these perceptions, potentially affecting their self-concept and confidence in social interactions. The PI subscale explores feelings of inferiority and dissatisfaction arising from negative comparisons of one's gingiva with those of others. It is well established that social comparison mechanisms play a major role in psychological well-being, where upward comparisons frequently contribute to adverse emotional experiences. Finally, the AC subscale reflects dissatisfaction with the appearance of one's gingiva in photographs, videos, or mirrors, perceptions that frequently motivate individuals to seek periodontal treatments aimed at improving gingival aesthetics.[8]

In the Turkish adaptation of the original validated scale, the translation process was conducted first, followed by a test–retest analysis with a group of 30 participants. In the original study, test–retest reliability was assessed with 35 participants, yielding an ICC of 0.650 (95% CI: 0.384-0.828).[8] In this study, although the initial target sample consisted of 30 participants, 6 individuals declined to participate in the retest phase, resulting in a final retest sample of 24 participants. The ICC obtained in this analysis was 0.604 (95% CI: 0.273-0.807). According to widely accepted thresholds,[14] ICC values between 0.5 and 0.75 indicate moderate reliability. Therefore, both the original study (ICC = 0.650) and this study (ICC = 0.604) demonstrate moderate test–retest reliability.

The findings of the factor analysis reveal both structural similarities and differences between the original scale (PIGAQ)[8] and its Turkish adaptation (PIGAQ-TR). In PIGAQ-TR, the first factor, SI, had the highest initial eigenvalue (10.310), accounting for 51.55% of the total variance. In contrast, in the original study, this factor had an eigenvalue of 2.56 and explained only 12.81% of the variance.[8] This suggests that the SI dimension is more dominant in the Turkish version and that participants responded to the items in this factor more consistently.

The second factor, GSC, was identified as the first factor in the original scale, with the highest eigenvalue (6.84) and explaining 34.19% of the total variance.[8] In contrast, in the PIGAQ-TR, this dimension emerged as the second factor, with a notably lower eigenvalue (2.884) and accounting for only 14.42% of the variance. This shift in factor order and the reduction in explained variance suggest that GSC, which appears to be a central construct in the original version, may hold comparatively less structural weight in the Turkish context. Cultural differences in perceptions of oral aesthetics and the social importance placed on gingival appearance may partially explain this discrepancy. In the original study, individuals' positive perceptions of their gingival appearance constituted a more central and dominant factor. In contrast, within the Turkish sample, items reflecting social anxiety, shyness, and concern about others' judgments regarding one's gingiva emerged as more prominent. When considered within the context of cultural differences, this suggests that individuals in Turkish society may be more sensitive to social evaluations related to appearance, and that ACs are more often experienced through the lens of interpersonal relationships. Furthermore, the prominence of factors such as the need for external validation and social avoidance in the Turkish sample appears to outweigh the expression of aesthetic satisfaction. This finding indicates that the SI dimension holds a more dominant and defining role in the Turkish version of the scale. Ultimately, the shift in the content distribution of the factors suggests that cultural context

significantly shapes individuals' attitudes and social responses toward their gingival appearance.

The third factor, AC demonstrated relatively low but comparable eigenvalues and variance explained in both the original and Turkish versions of the scale (PIGAQ-TR: eigenvalue = 1.189, variance explained = 5.95%; PIGAQ: eigenvalue = 1.11, variance explained = 5.55%). Although this factor appeared as the fourth factor in the original study and as the third factor in the Turkish adaptation, the similarity in statistical outputs suggests a consistent but structurally weaker dimension across both versions. The minor shift in factor order may reflect sample-specific variance rather than a meaningful structural difference. Overall, these results indicate that while AC is not a dominant component in either version, it maintains a stable presence in the factor structure of the scale.

The fourth factor, PI, showed a relatively weak presence in the PIGAQ-TR, with an eigenvalue slightly below 1.0 (0.981) and explaining only 4.91% of the variance. In contrast, in the original study, this dimension had a more defined structure, with an eigenvalue of 1.79 and 8.94% of the variance explained. These results suggest that the PI dimension may not be as strongly represented in the Turkish adaptation, possibly due to cultural differences in how PI or related behaviors are perceived. However, during the factor analysis process, a decision was made to retain the original 4-factor structure for the sake of theoretical consistency and comparability across versions. Given that the eigenvalue in the Turkish data was close to the commonly accepted threshold of 1.0, this factor was still included in the Turkish version of the scale. This methodological choice ensures alignment with the original model while acknowledging the relatively weaker statistical support for this dimension in the Turkish sample.

The total cumulative variance explained by the 4-factor model in the PIGAQ-TR was 76.82%, which is notably higher than the 61.49% explained by the same model in the original PIGAQ scale. This difference suggests that the Turkish version captures a greater proportion of the overall variance in participants' responses, potentially reflecting a more cohesive factor structure within the Turkish sample.

The PIGAQ holds potential for clinical use in evaluating periodontal patients' needs and tracking improvements in well-being associated with gingival condition throughout treatment. Furthermore, it can serve as a valuable instrument in studies exploring both perceived and actual periodontal treatment requirements, along with investigations into oral health-related quality of life in the context of periodontal health. With the Turkish adaptation and validation, this tool will become accessible for reliable clinical application and scientific research within Türkiye.

Although a sufficient sample size was achieved, the study results may have limited generalizability. Since there was no equivalent scale available, a gold standard for comparison could not be established, and therefore, only the validity analysis of the questionnaire was conducted. To establish a more comprehensive understanding of the PIGAQ-TR's validity, additional studies employing longitudinal designs are recommended. Long-term investigations of this nature could help evaluate the tool's sensitivity to temporal changes and its effectiveness in capturing outcomes before and after periodontal treatment, particularly in terms of perceived aesthetic improvements. This would contribute to a more robust evaluation of the instrument's responsiveness.

In the original study, Cronbach's alpha coefficients for the subdimensions ranged from 0.76 (AC) to 0.85 (GSC), with the total scale alpha at 0.89.[8] However, in the PIGAQ-TR adaptation, all subscales exhibited higher reliability coefficients, with the AC subscale showing a substantial increase from 0.76 to 0.94, and the total scale alpha improving from 0.89 to 0.95. This suggests that the adaptation process, possibly involving cultural and linguistic refinements, contributed to a more cohesive scale structure. The PIGAQ scale demonstrated excellent internal consistency across its subdimensions. Corrected item-total correlations were generally strong (above 0.67), and Cronbach's alpha values were high. For the GSC, SI, and PI dimensions, removal of any item lowered the respective Cronbach's alpha, indicating that all items positively contribute to reliability and should be retained.

In the AC dimension, however, while AC2 and AC3 clearly enhanced reliability, removal of AC1 increased Cronbach's alpha from 0.936 to 0.956. This suggests AC1 may reduce internal consistency and should be reviewed or potentially excluded. Although the AC dimension showed some internal consistency concerns due to the AC1 item potentially lowering reliability, it was retained because factor analysis identified AC as the third factor, explaining 5.95% of the total variance. Given its meaningful contribution to the overall scale structure and variance explained, the AC dimension was kept in the scale despite slight reliability issues with 1 item. This approach balances factorial validity with internal consistency considerations.

CONCLUSION

Our study demonstrates that the PIGAQ-TR scale possesses a robust factor structure and good internal consistency. Following this analysis, the scale can be reliably applied to the Turkish population. Since the gingiva plays a significant role in oral aesthetic perception, it is important to evaluate it with a dedicated scale. Furthermore, assessing patients' gingival aesthetics before and after periodontal treatments using this scale can provide valuable insights and contribute positively to oral health-related quality of life data.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Artificial Intelligence Usage Statement: The authors declared that no artificial intelligence tool was used in the preparation of the manuscript.

Ethics Committee Approval: Ethical committee approval was received from the İstanbul University Cerrahpaşa Clinical Non-Interventional Research Ethics Committee (Approval No.: 2024/257; Date: December 4, 2024).

Informed Consent: Written informed consent was obtained from the patients who agreed to take part in the study.

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Supplementary Table 1. Turkish translation of the original PIGAQ items across the four subscales. This table presents the Turkish-translated items of the original PIGAQ scale, categorized under the four subscales: GSC, SI, PI, and AC. The translation was conducted following standard cross-cultural adaptation procedures to ensure conceptual and linguistic equivalence.

Dişeti Özgüveni (DÖ)
DÖ-1 Diş etlerimle gurur duyuyorum.
DÖ-2 Gülümsediğimde diş etlerimi göstermeyi seviyorum.
DÖ-3 Aynada diş etlerimi gördüğümde mutlu oluyorum.
DÖ-4 Diş etlerim başkalarına çekici görünüyor.
DÖ-5 Diş etlerimin görüntüsünden memnunum.
DÖ-6 Diş etlerimin seviyesini çok beğeniyorum.
Sosyal Etki (SE)
SE-1 İnsanları iyi tanımıyorsam, diş etlerim hakkında ne düşünebilecekleri konusunda bazen endişeleniyorum.
SE-2 İnsanların diş etlerim hakkında kırıcı yorumlar yapmasından korkuyorum.
SE-3 Diş etlerim nedeniyle sosyal ilişkilerde biraz çekingen oluyorum.
SE-4 Bazen elimi ağzımın önüne getirerek diş etlerimi sakladığımı fark ediyorum
SE-5 Bazen insanların diş etlerime baktığını düşünüyorum.
SE-6 Diş etlerimle ilgili yapılan yorumlar, şaka yoluyla bile olsa beni rahatsız ediyor.
SE-7 Bazen karşı cinsin diş etlerim hakkında ne düşündüğü konusunda endişeleniyorum.
Psikolojik Etki (PE)
PE-1 Başkalarının güzel diş etlerine imreniyorum.
PE-2 Bazen diş etlerimin görünümünden mutsuz oluyorum.
PE-3 Tanıdığım çoğu insanın diş etlerinin benimkilerden daha güzel olduğunu düşünüyorum.
PE-4 Diş etlerimin daha iyi görünmesini isterdim.
Estetik Kaygı (EK)
EK-1 Aynada diş etlerimi görmekten hoşlanmıyorum.
EK-2 Fotoğraflarda diş etlerimi görmekten hoşlanmıyorum.
EK-3 Kendimi izlediğim bir videoda diş etlerimi görmekten hoşlanmıyorum

*GSC: Gingival Self-Confidence, SI: Social Impact, PI: Psychological Impact, AC: Aesthetic Concern; PIGAQ: Psychosocial Impact of Gingival Aesthetics Questionnaire, DÖ: Dişeti Özgüveni, SE: Sosyal Etki, PE: Psikolojik Etki, EK: Estetik Kaygı