



Translation and Validation of the Albanian Version of the Psychosocial Impact of Dental Aesthetics Questionnaire in Kosovo

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Abstract

Objective Modern orthodontics is shifting from being doctor centric to patient centric, and understanding the impact of malocclusion from patient's perspective is very important. To accomplish this, questionnaires that assess the psychosocial effects of malocclusion must be validated in the original language of the respondents. The purpose of this study is translation, validation, and cross-cultural adaptation of the psychosocial impact of dental aesthetics questionnaire (PIDAQ) into the Albanian language.

Materials and Methods The PIDAQ questionnaire was translated into Albanian, back translated, pretested, cross-culturally adapted, and finally delivered to 130 subjects (38% males) aged between 18 and 30 years (mean age 24.3 ± 3.7). A dentist, previously calibrated, evaluated the orthodontic treatment needs of each subject by using the dental health and aesthetics component of the Orthodontic Treatment Need Index (IOTN). In this study, the internal consistency, test–retest reliability, discriminant validity, and responsiveness were assessed.

Results Albanian version of PIDAQ shows satisfactory internal consistency (α ranging from 0.90 to 0.96) with high test–retest reliability ($r > 0.98$). The discriminant validity revealed that subjects with minor and severe malocclusion according to IOTN categorization had different PIDAQ scores ($p < 0.001$). Among the domains of PIDAQ, the subscale of dental self-confidence detected differences in psychosocial impact related to orthodontic treatment during the testing of responsiveness ($p < 0.001$).

Conclusion The PIDAQ in Albania showed strong psychometric characteristics. It is suitable for use in the Albanian cultural context.

Keywords

- ▶ validity
- ▶ reliability
- ▶ malocclusion
- ▶ quality of life
- ▶ dental aesthetics

Introduction

Research has demonstrated that severe malocclusion is likely to be a social handicap¹ and that it can lower quality of life by leading to the emergence of social anxiety, emotional instability, concern, and problems with interpersonal con-

nections.² Nevertheless, Spalj et al have shown that treating malocclusion enhances both dental self-confidence and overall psychological impact (PI).³ Several studies have employed the oral health-related quality of life (OHRQoL) questionnaires to assess the impact of malocclusion on

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patients' quality of life.³⁻⁷ The psychosocial impact of dental aesthetics questionnaire (PIDAQ), a multidimensional measure of orthodontic-specific quality of life outcomes, was created by Klages et al specifically to assess OHRQOL related to orthodontics. PIDAQ has been adapted into many languages and has been recognized as a tool with strong psychometric characteristics.^{3,8-12} However, no adult PIDAQ version for Albania has yet been created. So, the purpose of this study was to translate and validate the questionnaire within the cultural setting of Albania language.

Objectives

The purpose of this study is translation, validation, and cross-cultural adaptation of PIDAQ into the Albanian language.

Material and Methods

The Declaration of Helsinki's recommendations were followed in this study, and all of the participants were willing volunteers who gave their written agreement. In total, 130 respondents in total, 38% of whom were men, were chosen from Prishtina and Gjilan, two cities in Kosovo, offering a diversified sampling pool given that Prishtina's population is made up of 50% immigrants from other parts of the nation.

The PIDAQ questionnaires were given to the participants as they waited for their yearly dental examination, orthodontic treatment, or appointments at their private clinics with the dentist. The subsequent exclusion standards were used during sampling: (1) prior orthodontic treatment, (2) missing or damaged anterior teeth, (3) anterior area discoloration, and (4) craniofacial deformity.

One researcher, who had previously received training and calibration in the use of the index, evaluated the subject's need for orthodontic treatment after completing the questionnaire by utilizing the dental health component (DHC) and aesthetic component (AC) of the Index of Orthodontic Treatment Need (IOTN). Grades 1 and 2, 3, 4, and 5 were separated into 4 IOTN-DHC groups and 4 IOTN-AC groups, respectively, for the sample (score 1-3, score 4-5, score 6-7, and score 8-9-10).

Description of the Psychosocial Impact of Dental Aesthetics Questionnaire

PIDAQ is a special 23-item questionnaire developed to evaluate the psychosocial effects of dental aesthetics in young adults (18-30 years). It consists of four subscales: dental self-confidence (DSC) (6 items), social impact (SI) (8 items), PI (6 questions), and aesthetic concern (AC), which are each separated into one positive and three negative domains (three items). Each response to the survey is based on a Likert scale with a score ranging from 0 (not at all) to 4 (very strongly).

Translation

The first draft of the PIDAQ was created after the English version of the questionnaire was independently translated into Albanian by three orthodontists who were fluent in both languages (one of whom was experienced with OHRQOL

Table 1 Internal consistency for the PIDAQ subscales (n = 130) and test-retest reliability assessed by intraclass correlation (ICC) coefficient and paired sample t-test (n = 20)

Subscale ^a	Internal consistency (n = 130)				Test-retest reliability (n = 20)				ME- Measurement error SDC- Smallest detectable change LOA- Limits of agreement			
	Mean ± SD	Range	A	α if (subscale) item deleted	Average interitem correlation with range	ICC (95% CI)	ME	SDC		Paired differences mean	95% CI	p ^a
Dental self-confidence (six items)	1.8 ± 1.3	0-4	0.96	0.915	0.83 (0.75-0.84)	0.98 (0.95-0.99)	0.87	2.42	-0.02	-0.12-0.07	0.59	-0.43-0.37 (100%)
Social impact (eight items)	2.9 ± 1.04	0.75-4	0.94	0.928	0.68 (0.51-0.79)	0.99 (0.97-0.99)	0.72	1.99	0.06	-0.01-0.14	0.11	-0.26-0.38 (95%)
Psychological impact (six items)	2.3 ± 1.1	0.33-4	0.90	0.907	0.61 (0.47-0.82)	0.98 (0.94-0.99)	0.85	2.35	0.00	-0.09-0.09	1.00	-0.38-0.38 (95%)
Esthetic concern (three items)	2.6 ± 1.4	0-4	0.93	0.906	0.82 (0.76-0.89)	0.99 (0.98-0.99)	0.71	1.96	0.05	-0.03-0.13	0.19	-0.27-0.37 (95%)

Abbreviations: CI, confidence interval; PIDAQ, Psychosocial Impact of Dental Aesthetics Questionnaire; SD, standard deviation; ME, measurement error; SDC, smallest detectable change; LOA, limits of agreement.
^aKruskal-Wallis test.

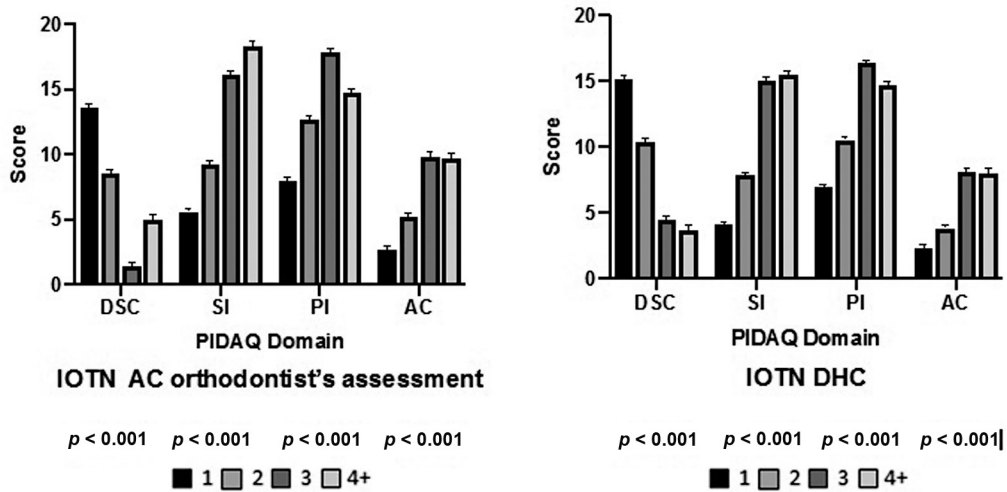


Fig. 1 Discriminate validity of PIDAQ domains in IOTN AC and DHC grades (1 = perfect esthetics and occlusion, 4 = most altered esthetics and occlusion) according to the Kruskal–Wallis test (*p*-values presented in x-axis).

instruments). A professional translator then independently back translated the Albanian version into English. The original, translated, and back-translated versions were compared by a committee made up of three English-speaking orthodontists, and a dentist before a second draft was suggested.

The second draft of the Albanian PIDAQ questionnaire was given to 10 respondents who were not part of the main study sample to assess the coherence of the items in the context of Albanian language. A few linguistic adjustments were performed in light of the resulting findings, and the Albanian Version of PIDAQ was finally created.

Statistical Analysis

The internal consistency of the Albanian version of PIDAQ was assessed by calculating Cronbach Alpha coefficients for the subscales and average interitem correlations for the PIDAQ dimensions. Test–retest reliability was assessed by calculating the intraclass correlation coefficients and measurement error from a test–retest assessment performed 3 weeks later on 20 patients with no dental intervention.

Discriminant validity was tested by comparing each domain of the PIDAQ between levels of malocclusion assessed by the investigator according to IOTN DHC and IOTN AC by Kruskal–Wallis and Mann–Whitney tests using Bonferroni

correction of *p*-values for multiple comparisons. The level of significance was set to 5%.

After orthodontic treatment was completed (canine in Class I, extraction and nonextraction cases), 20 participants recompleted the PIDAQ to measure responsiveness. To examine differences in the psychological profiles of the subjects in relation to treatment, a paired-samples *t*-test was performed.

Results

In contrast to the original instrument’s four components, the explanatory factor analysis revealed just two variables. However, only these two variables accounted for 71.55% of the variance.

The four domains in the model showed satisfactory internal consistency (–Table 1). All PIDAQ subscales attained Cronbach’s alpha estimate above 0.70. The internal consistency was smaller in PI compared with the three other scales. The items in each subscale demonstrated a very strong correlation with the corresponding total score from the questionnaire (*r* in range 0.61–0.83). As a result, the original instrument with the four-factor structure was deemed appropriate.

Test–retest validity was high (>0.97; –Table 1). The difference between test and retest scores within the limits of agreement was appropriate considering the sample size.

Table 2 Responsiveness testing of PIDAQ domains (*n* = 20)

	Mean baseline score - mean follow-up score	95% CI for mean differences	Summary score range at baseline	Standardized effect size	<i>p</i> ^a
DSC	3.3–19.5	–18.67–(–13.63)	0–24	–2.99	<0.001
SI	23.7–4.15	15.89–23.21	6–32	2.50	<0.001
PI	21.9–5.7	13.28–19.12	2–24	2.60	<0.001
AC	11.4–1.4	8.12–11.88	0–12	2.49	<0.001

Abbreviations: AC, aesthetic concern; CI, confidence interval; DSC, dental self-confidence; PIDAQ, psychosocial impact of dental aesthetics questionnaire; SI, social impact.

^aPaired sample *t*-test.

Each domain of PIDAQ could discriminate levels of malocclusion assessed by the IOTN AC with the orthodontist's assessment (►Fig. 1). Discriminant validity was also present in IOTN DHC (►Fig. 1).

Significant differences were noted in the subjects' psychosocial impact as a result of the orthodontic treatment that improved their dental aesthetics ($p < 0.001$; ►Table 2).

Discussion

The structure and consistency of the Albanian PIDAQ were comparable to those of the Croatian, Spanish, Brazilian, Turkish, and Moroccan^{3,9,12–14} versions. Aesthetic Concern showed the highest internal consistency coefficient, while PI showed the lowest. The PI also had the lowest average interitem correlation and the PI's Cronbach's alpha coefficient. The PI's items are concerned with the psychological health of the population under study. Given the 18 to 30 age range of the subject population and the low correlation of the PI, followed by the SI, the findings may indicate that the population is concerned about their image, which has an effect on their psychological well-being and social relationships. Cronbach's alpha for the four subscales of the Albanian PIDAQ has shown results between 0.90 and 0.95, demonstrating strong reliability, which was higher than Indian (0.82–0.88), French (0.67–0.87), and Malaysian (0.56–0.84) version of PIDAQ.^{15–17}

The treatment need evaluated by the orthodontist (IOTN AC) and the dental health component (IOTN -DHC) indices were used to determine the discriminant validity of the questionnaire and its subscales. According to the findings, both indices' PI and SI subscale scores increase as the severity of the treatment need increases. Given that the DSC is assessed on a positive domain, the subscale scores rise as the treatment need decreases. Each subscale had a strong relationship with the two indices used.

The young adolescent population's intense preoccupation with their image, which affects their social relationships, is one explanation for the rise in the PI and SI subscale scores. The population's higher scores on the PI and SI subscales were correlated with the malocclusions and treatment needs determined by the orthodontist. The same results were presented by Gassem Ben et al showing that extent of malocclusion of young adults was directly correlated with the perceived psychosocial impact of dental aesthetics.¹⁸

The response testing results demonstrate that dental therapy greatly lessens the adverse psychological and social effects of dental aesthetics on patients.

Conclusion

The PIDAQ in Albania showed strong psychometric characteristics. It is suitable for use in the Albanian cultural context.

Conflict of interest
None declared.

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