


Cross-cultural adaptation of Turkish version of Parental-Caregiver Perceptions Questionnaire (P-CPQ)

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Funding information

There is no funding.

Abstract

Introduction: Parental-Caregiver Perceptions Questionnaire (P-CPQ) is one of the scales used for evaluating the quality of life of children. Dental caries is an important factor affecting oral health-related quality of life. It was aimed to translate into Turkish and evaluate the psychometric properties of the P-CPQ with the evaluation of dental caries status of 6- to 14-year-old children.

Methods: Children-parent pairs attending to paediatric dental clinic were involved. After the translation and adaptation of the scale, the data were collected from the parents with the Turkish version of the P-CPQ and a short questionnaire, and then, the intra-oral examination of the children was performed by a paediatric dentist. Statistical analysis was performed by using SPSS version 22.0 and SPSS AMOS 22. The significance level was 0.05. Confirmatory factor analysis for construct validity; and item analysis, item discrimination index and the Cronbach alpha internal consistency coefficient for reliability measurement were calculated. Discriminant validity was tested by comparing the median P-CPQ scores between children with caries experience and those without.

Results: Totally, 312 children-parent pair (52.9% female) participants were involved. The mean age of participated children was 9.00 ± 1.89 . P-CPQ score was calculated by summing the scores of all 31 items; the mean score of the parents was 18.8 ± 12.8 . Cronbach's alpha for the total scale was 0.87 and ranged from 0.680–0.795 for four subscales. The relationship between total and subscales was found to be statistically significant. Confirmatory factor analysis, item analysis and item discriminant index were approved. Model fit values were admissible.

Conclusions: Turkish version of P-CPQ was created, and it had good internal consistency reliability of subscales and found to be valid in 6- to 14-year-old children.

KEYWORDS

caregiver, children, parent, quality of life, validation

1 | INTRODUCTION

Oral health reflects physiological, social and psychological attributes, which are essential for the quality of life (QoL).¹ In this context, it is very important to evaluate the oral health-related quality of life (OHRQoL) besides oral health. The presence of oral and dental diseases can negatively affect the children and the parents.²⁻⁷ Tooth loss and pain due to dental caries result in chewing function and speech disorder, aesthetic and self-confidence problems, sleep disturbances, school absenteeism, school success and a decrease in quality of life.⁸

Various instruments have been developed to evaluate the OHRQoL for adults, for the children and for their families; however, measurement methods used for adults are not suitable for children and also for parents.^{3,9-13} One of the most commonly used instruments to assess effects of oral and orofacial disorders on the well-being of 6- to 14-year-old children and their families is a series of questionnaires (Child Oral Health Quality of Life, COHQoL) developed by Jokovic et al. at Toronto, Canada, which consists of 3 main questionnaire groups that aim to measure the perceptions of children (CPQ),^{11,12} the perceptions of parents-caregivers (P-CPQ)⁴ and the impact of children's oral health on family life.¹³ 'Parental-Caregiver Perceptions Questionnaire (P-CPQ)' and 'Family Impact Scale (FIS)' are filled by parents-caregivers, while 'Child Perceptions Questionnaire (CPQ)' is a questionnaire to be filled in by children. The reliability and validity of the P-CPQ component were demonstrated.^{4,14} The P-CPQ has been translated and cross-culturally adapted in China,¹⁵ Brazil,¹⁶⁻¹⁸ Peru,¹⁹ New Zealand⁵ and France.²⁰ The primary aim of this study was to translate P-CPQ into Turkish as no Turkish version of the P-CPQ was found in a literature search, and to evaluate the psychometric properties of the P-CPQ. The secondary aim of this study was to compare the P-CPQ scores with dental caries status of the 6-to 14-year-old children.

2 | METHODS

2.1 | Ethics

This methodological study was approved by the Hacettepe University Non-Interventional Clinical Researches Ethics Board (Approval number: GO 20/05). The necessary permission was obtained from the researchers who developed the original 'Parental-Caregiver Perceptions of Child Oral Health-related Quality of Life Questionnaire' (P-CPQ) in written form (by e-mail). Later then, the written consent forms of the parents and children were also completed.

2.2 | Participants

Parents-caregivers of children aged between 6 and 14 years attending the paediatric dental clinic (Golbasi Oral Dental Health Center)

for the complaint of dental caries or only for routine dental control examination were included in the study. Children with any mental disability or admitted to the clinic for advanced signs of infection such as dental trauma or cellulitis were excluded from the study due to the possible great effect on parents. Sample size calculation was planned according to the knowledge that a minimum of 10 participants for each item is recommended in these methodological studies²⁴; therefore, a 31-item questionnaire is required for 310 participants for validity and reliability analyses.

2.3 | Translation and adaptation of the questionnaire

The translation procedure followed was a forward and backward translation process. Initially, the Turkish translation of the scale items was accomplished by three paediatric specialists. Afterwards, the retranslation of the agreed Turkish translation was made by two translators whose native language was English (bilingual speakers), and the translations were compared with the original scale. Then, the agreed English translation was translated back into Turkish by independent two people. The penultimate agreed version was subjected to a pilot study of 30 parents-caregivers who were not included in the final sample group in order to discuss the suitability of the items and to determine the comprehensibility problems. The participants were informed about the purpose of the pre-test and asked to report the questions they had difficulty understanding and comment on the understandability of the scale. According to the pre-test results, the questionnaire was revised by the committee and the final version of the Turkish-P-CPQ was obtained.

2.4 | Data collection

Data were collected after the ethical approval, and all formal permissions were completed in the first quarter of 2020. In the first part of data collection, a standardized questionnaire form, which comprises socio-demographic information and information about the child's oral health and oral hygiene, was used. The questionnaire, which developed by the researchers, and pre-tested in the group of 30 parents who were also in a pilot study group of translation of the scale, was filled in by a paediatric dentist with a face-to-face interview method. Thereafter, as a second part of the data collection, the parent-caregiver was administered the Turkish version of P-CPQ. Subsequently, the last part was the oral examination of the children by one paediatric dentist in dental clinic under the reflector light according to the guideline of the WHO Oral Health Assessment Form.²¹ In the oral and dental examination, dmft(s)/DMFT(S) index system in dentistry records the total number of teeth or surfaces with caries (d), fillings (f) and extraction as a result of caries (m)²² and pufa/PUFA index,²³ revealing some clinical consequences of untreated caries teeth such as the

presence of pulpal involvement (p/P), ulceration (u/U), fistula (f/F) and abscess (a/A).

A Turkish translation of the P-CPQ questionnaire, which consists of 31 questions and 4 subscales and aims to measure OHRQoL of parents of six- to fourteen-year-old children, was used. In this questionnaire, oral symptoms in the first subscale (6 questions), functional limitations in the second subscale (8 questions), emotional well-being in the third part (7 questions) and social well-being in the fourth part (10 questions) are questioned.⁴ For all questions, the frequency of the events in the previous 3 months in relation to the child's oral/orofacial condition was evaluated. The responses were scored on a 5-point Likert scale (never: 0; once/twice: 1; sometimes: 2; often: 3; and everyday/almost every day: 4). A total score and subscale scores were calculated by summing up all scores. The higher score points higher negative effect on the quality of life. Furthermore, two questions asking the parents for a global rating of their children's oral health and the extent to which the oral health affected their overall well-being were designed. These global ratings had a 5-point response format similar to scale. The responses for general well-being were scored as follows: 'excellent' health and not at all = 0; very little = 1; somewhat = 2; a lot = 3; and very much = 4.

2.5 | Statistical analysis

Frequencies and percentages for categorical variables, and mean, standard deviation, minimum, maximum, median and the interquartile range (IQR) for continuous variables were reported. Confirmatory factor analysis for construct validity, and item analysis and item discrimination index, computed on 27% of lower-upper group based on 84 observations and the Cronbach alpha internal consistency coefficient, for reliability were calculated. The Cronbach

alpha with a range of 0.60–0.79 was found to be good.²⁴ As a result of the confirmatory factor analysis, standardized coefficient estimates and model fit indices were obtained. The estimation method was the maximum-likelihood method. In item analysis, the contribution of each item to subscale is evaluated and whether deleted of items. These descriptive measures are mean, standard deviation, scale mean and variance if item deleted, corrected item-total correlation and Cronbach's alpha if item deleted. In discrimination index, we examine whether difference of 27% lower and upper groups. The correlation between total and subscales was computed with Spearman's correlation coefficient. Besides, due to the error in the measurement model, we computed the correlations by using structural equation model. Discriminant validity was tested by comparing the median P-CPQ scores between children with caries experience and those without. As the P-CPQ scores were not normally distributed, the nonparametric Kruskal-Wallis H test was used to evaluate the difference in median scores between the two groups. Statistical analysis was performed by using SPSS version 22.0 and SPSS AMOS 22. The significance level was 0.05. The process of this study is summarized in Figure 1.

3 | RESULTS

In this study, totally 312 participants (children-parent pair) were involved; of the children, 165 (52.9%) were female and 70.2% of the parents were mothers. The mean age of participated children was 9.00 ± 1.89 (min:6 max: 13 years). One in fifth ($n = 66$) of children did not have regular toothbrushing habits (Table 1).

The answers of the parents for these two questions, which were answered before the P-CPQ, 'How would you rate the health of your child's teeth, lips, jaws and mouth?' and 'How much is your child's overall wellbeing affected by the condition of his/her teeth, lips, jaws

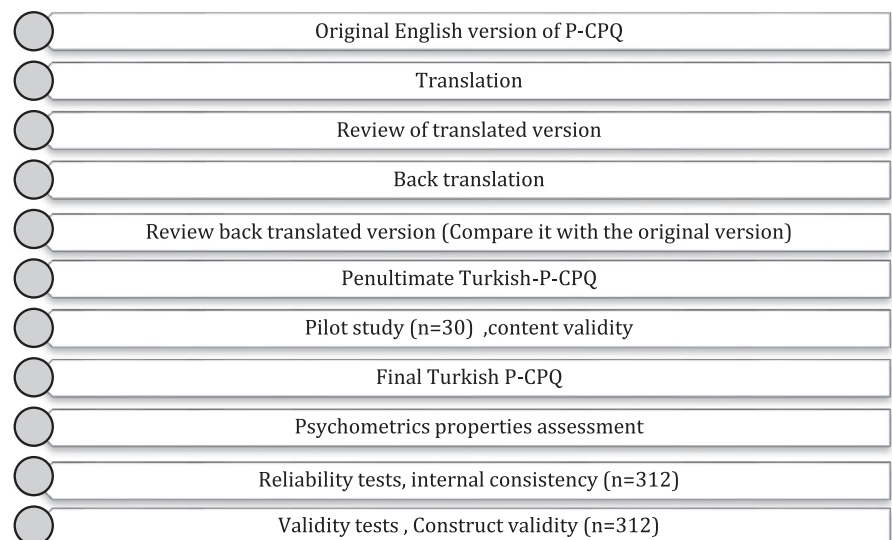


FIGURE 1 Flow chart of the study

TABLE 1 Some characteristics of children

Characteristics	n	%
Gender		
Female	165	52.9
Male	147	47.1
Regular toothbrushing		
No	66	21.2
Yes	246	78.8
Frequency of brushing		
Never	2	0.6
Rarely	64	20.5
Once a day, at night	132	42.3
Once a day, in the morning/midday	27	8.7
Twice a day	83	26.6
Three or more times a day	4	1.3
Health of child's teeth, lips, jaws and mouth according to the parent		
Poor	25	8.0
Fair	160	51.3
Good	103	33.0
Excellent /very good	24	7.7
Child's overall well-being affected by his or her teeth, lips, jaws or mouth		
Not at all	22	7.1
Very little	53	17.0
Somewhat	111	35.6
A lot	88	28.2
Very much	38	12.2

or mouth?' are shown in Table 1. Half of the parents (51.3%) stated as 'fair' for the health of the teeth, lips, jaws and mouth of their children. Child's overall well-being was found as 'somewhat affected' by the child's teeth, lips, jaws or mouth in one in three (35.6%) of the children according to the parents.

The results of validity and reliability, and in other words, item analysis, item discriminant analysis, standardized estimates, descriptive statistics of items and general descriptive and Cronbach's alpha of subscales are shown in Table 2.

The mean and standard deviation values of each item in all four subscales besides the general scores of subscales as descriptive statistics were given. The subscale scores were 6.80 ± 3.89 , 4.97 ± 4.80 , 4.54 ± 4.53 and 2.47 ± 3.90 for oral symptoms, functional limitation, emotional and social well-being subscales, respectively. P-CPQ score was calculated by summing the scores of all 31 items; the total score was 18.8 ± 12.8 . In Table 2 as it is seen, Cronbach's alpha for the subscales ranged from 0.680 to 0.795. Cronbach's alpha for the total scale was 0.87. These statistics indicated a good internal consistency reliability of subscales and the total scale in the approved range of 0.60–0.79. In item analysis, the contribution to dimensions of each item was

examined to see the consistency of item and subscale and to decide whether there is a need to remove them. As Cronbach's alpha did not change when the items were deleted, we could accept these items and we need not remove them. In item discrimination index, we tested the difference of 27% lower-upper groups for each item. All items were not differentiating between upper and lower groups ($p \leq 0.001$); therefore, we provided item discriminability.

In confirmatory factor analysis for construct validity, standardized estimations were reported. All of them were found statistically significant ($p < 0.05$). Also, because the presented model was well-fitted, modification was not needed. The computed model fit indices could suggest admissible and acceptable bounds (CMIN/df = 1.190, RMR = 0.057, GFI = 0.947, AGFI = 0.938, RFI = 0.893, PNFI = 0.830).

Spearman's correlation coefficients of total and subscale scores are shown in Table 3. The relationship between total and subscales was found to be statistically significant ($p < 0.05$). Because Spearman's rank correlation coefficient is raw correlation among two variables and we measure psychological and abstract properties, also we computed structural equation model coefficient.

In Table 4, we found that there was a statistically significant difference according to the DMFT groups in only oral symptoms subscale ($p = 0.026$). Other dimensions and total score were statistically non-significant. Total and subscale scores were not differentiating according to dmft groups statistically.

4 | DISCUSSION

In this study, P-CPQ had been translated and the Turkish version of the scale was evaluated for the psychometric properties. Parental answers for their children were compared with dental caries status of the 6- to 14-year-old Turkish children. The Turkish version of P-CPQ had a good internal consistency reliability of subscales and found to be valid in 6- to 14-year-old children. The median P-CPQ score was highest in the group of children with DMFT ≥ 6 . The median P-CPQ score was highest in the group of children with dmft = 0.

It is important to use measurement tools in the quality of life studies for gathering a globally understandable result. The translation and validation are also important due to cultural differences. The issue of appropriateness of the wording of an item is conceptually equivalent to the original.¹⁵ The study patient group comprises children who attended to the paediatric dental clinic (Golbasi Oral Dental Health Center) for the complaint of dental caries or only for routine dental control examination. The applies to this Oral Dental Health Center are not differing according to their socioeconomic and sociocultural status.

For reliability, internal consistency was evaluated with Cronbach's alpha. For the reliable scale, items need to be correlated with each other for items addressing the same concept that are

TABLE 2 Results of item analysis and descriptive statistics according to subscales

	Item analysis			Item Discrimination Index				
	Mean ± SD	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	t	p	Standardized estimates
Oral symptoms								
Food caught between teeth	1.85 ± 1.058	4.96	11.156	.401	.641	-8.273	<0.001	0.558
Pain in teeth/mouth	1.58 ± 1.067	5.22	11.319	.369	.652	-8.758	<0.001	0.569
Bad breath	1.60 ± 1.257	5.21	9.657	.496	.606	-9.156	<0.001	0.615
Mouth sores	0.75 ± 1.047	6.06	11.032	.429	.632	-6.932	<0.001	0.438
Bleeding gums	0.67 ± 0.988	6.14	11.277	.431	.632	-5.178	<0.001	0.471
Food stuck to roof of mouth	0.37 ± 0.803	6.44	12.549	.337	.662	-6.094	<0.001	0.374
General	6.80 ± 3.89	Median = 7, min = 0, max = 23, Cronbach Alpha = 0.680						
Functional limitations								
Difficulty chewing firm food	0.79 ± 1.101	4.18	17.220	.503	.686	-8.713	<0.001	0.576
Unclear speech	0.30 ± 0.746	4.67	19.983	.372	.714	-5.555	<0.001	0.454
Difficulty eating foods would like to eat	0.66 ± 1.021	4.31	17.412	.536	.680	-8.940	<0.001	0.569
Slow eating	1.20 ± 1.413	3.78	16.413	.403	.718	-12.831	<0.001	0.540
Breathing through mouth	1.21 ± 1.324	3.76	17.455	.345	.729	-9.545	<0.001	0.499
Restricted diet	0.17 ± 0.628	4.80	19.949	.478	.704	-4.170	<0.001	0.409
Trouble sleeping	0.47 ± 0.975	4.50	18.071	.483	.692	-6.669	<0.001	0.553
Difficulty drinking/eating hot/cold foods	0.17 ± 0.628	4.80	19.949	.478	.704	-4.170	<0.001	0.409
General	4.97 ± 4.80	Median = 4, min = 0, max = 28, Cronbach Alpha = .731						
Emotional well-being								
Upset	0.76 ± 0.987	3.78	15.123	.581	.757	-11.954	<0.001	0.701
Irritable/frustrated	0.88 ± 1.053	3.66	15.022	.543	.765	-10.358	<0.001	0.610
Worried he or she is less attractive than others	0.48 ± 0.969	4.06	15.952	.474	.778	-6.559	<0.001	0.484
Shy (embarrassed)	0.96 ± 1.145	3.58	14.733	.514	.773	-10.314	<0.001	0.586
Anxious/fearful	0.87 ± 1.088	3.67	14.268	.621	.748	-12.985	<0.001	0.736
Worried that is different from other people	0.34 ± 0.773	4.21	16.614	.531	.770	-6.688	<0.001	0.569
Worried about having fever friends	0.24 ± 0.665	4.30	17.631	.445	.784	-5.702	<0.001	0.507

(Continues)

TABLE 2 (Continued)

	Item analysis		Item Discrimination Index					
	Mean ± SD	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	t	p	Standardized estimates
General	4.54 ± 4.53							
Social well-being								
Teased/called names by other children	0.21 ± 0.663	2.25	12.203	.561	.723	-4.749	<0.001	0.647
Avoid smiling when around other children	0.21 ± 0.684	2.26	12.540	.461	.737	-4.432	<0.001	0.625
Asked by other children about condition	0.40 ± 0.926	2.07	11.648	.433	.745	-6.489	<0.001	0.462
Not wanted to speak/read aloud in class	0.34 ± 0.768	2.13	12.192	.458	.737	-6.048	<0.001	0.483
Not wanted to talk to other children	0.24 ± 0.658	2.23	12.384	.524	.729	-5.497	<0.001	0.556
Had hard time paying attention in school	0.41 ± 0.863	2.05	11.621	.488	.733	-7.265	<0.001	0.618
Not wanted/unable to be with other children	0.14 ± 0.467	2.33	13.610	.410	.747	-4.780	<0.001	0.462
Missed school	0.09 ± 0.394	2.38	14.242	.283	.758	-3.373	0.001	0.304
Not wanted/unable to take part in activities	0.21 ± 0.671	2.26	14.076	.142	.778	-3.828	<0.001	0.167
Left out by other children	0.21 ± 0.663	2.25	12.203	.561	.723	-4.749	<0.001	0.647
General	2.47 ± 3.90							
Total	18.8 ± 12.8							

Median = 4, min = 0, max = 26, Cronbach Alpha = .795

Median = 0, min = 0, max = 26, Cronbach's alpha = 0.762

Cronbach's alpha = 0.87

actually doing so; it was checked for four subscales and the overall scale. Cronbach's α were 0.680, 0.731, 0.795 and 0.762 for oral symptoms, functional limitation, emotional well-being and social well-being, respectively. The scale with a range of 0.680–0.795 is found to be a reliable scale.²⁴ Total Cronbach's α was estimated to be 0.870 for high internal consistency reliability. Emotional well-being subscale items were the most consistent among subscales, while oral symptoms were the lowest, and this result is in parallel with the original scale reliability test results.⁴ This is thought to be related to oral symptoms subscale, which might be predicted by the parent according to only how the child told of, while emotional well-being subscale might be predicted by the parent with only him/her observations.

For construct validity, the result of confirmatory factor analysis was evaluated. Standardized estimations were reported. All of them were found to be significant statistically. Also, modification was not needed because the presented model was well-fitted. Computed model fit indices could suggest admissible bounds.

In discriminant validity, the subscales and total scores were found to be statistically non-significant according to the DMFT/dmft

groups except for oral symptoms in the DMFT groups. The reason for this situation could be that number of participants per group was low.

The P-CPQ component of COHQoL measurement scales was tested in clinical setting. In nonclinical or population-based studies, the scale's psychometric properties should be confirmed. Moreover, it would be valuable to test the measures' sensitivity with respect to specific oral childhood conditions (such as in a group of children with traumatic dental injuries, orthodontic problems) or special health care-needed groups. In addition, the original scale with 31 questions was used in this study, due to the thought of not being a time constraint in the clinical setting for the dental examination appointment. However, the translation and cultural adaptation study of the short-form of P-CPQ would also be useful, especially in nonclinical practices for the evaluation of oral health-related quality of life.

For reliability, although it was planned to do a test-retest for the one in four of the children, it could not be completed due to the disturbance of the patient examination/treatment in dental clinics in the COVID-19 pandemic, which was occurred in the mid of the study and after all the patients for this study plan were examined.

TABLE 3 Correlation coefficient of total and subscale scores

	OS	FL	EW	SW
Total scale	.668	.796	.804	.702
Subscales				
Oral symptoms	-	.491	.327	.213
Functional limitations	.710	-	.471	.345
Emotional well-being	.460	.660	-	.572
Social well-being	.300	.460	.700	-

Note: The elements above the diagonal are Spearman's correlation coefficient, and the elements below the diagonal are structural model correlation coefficients in the measurement error model.

Abbreviations: OS, oral symptoms; FL, functional limitations; EW, emotional well-being; SW, social well-being.

5 | CONCLUSION

The Turkish version of P-CPQ was created, which had good internal consistency reliability of subscales and found to be valid in 6- to 14-year-old children.

6 | CLINICAL RELEVANCE

In order to improve the oral-derived quality of life of children, it is necessary to question in an understandable way what the children and parents experienced and felt about their child's oral cavity and symptoms.

TABLE 4 Discriminant validity: overall and subscales scores for DMFT/dmft groups of children

	DMFT				dmft			
	0 (n = 162)	1-5 (n = 139)	≥6 (n = 11)	H (p-value)	0 (n = 26)	1-5 (n = 174)	≥6 (n = 112)	H (p-value)
	Median (IQR)	Median (IQR)	Median (IQR)		Median (IQR)	Median (IQR)	Median (IQR)	
Oral symptoms	6 (4)*	7 (6)*	8 (4)	7.331 (0.026)	6 (5.50)	6.50 (5)	7.00 (6.00)	4.709 (0.095)
Functional limitation	4 (5)	4 (6)	6 (8)	2.073 (0.355)	4.50 (7.25)	4.00 (6.00)	4.00 (6.00)	0.107 (0.948)
Emotional well-being	3 (6)	4 (5)	5 (10)	5.381 (0.068)	2.50 (8.00)	4.00 (6.00)	4.00 (7.00)	1.460 (0.482)
Social well-being	0 (3)	1 (4)	2 (6)	1.175 (0.556)	0.50 (6.00)	0.00 (3.00)	0.50 (4.00)	0.840 (0.657)
Total	15 (15.25)	17 (16)	19 (25)	5.681 (0.058)	20.50 (16.00)	16.00 (15.00)	17.00 (16.00)	2.244 (0.326)

There is important difference among groups with asterisks () statistically.

ACKNOWLEDGEMENT

There is nothing to acknowledge.

CONFLICT OF INTEREST

There is no conflict of interest.

AUTHOR CONTRIBUTIONS

IMG contributed to the planning and the data collection with dental examinations. COO and PSE contributed to the planning, data preparation for the analysis and the writing of the manuscript. FU contributed to statistical analysis. ASA contributed to the revision. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1964 and later versions. Informed consent was obtained from all patients for being included in the study.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES

- Glick M, Williams DM, Kleinman DV, Vujicic M, Watt RG, Weyant RJ. A new definition for oral health developed by the FDI World Dental Federation opens the door to a universal definition of oral health. *Int Dent J*. 2016;66(6):322-324.
- Peker K, Uysal O, Bermek G. Cross - cultural adaptation and preliminary validation of the Turkish version of the early childhood oral health impact scale among 5-6-year-old children. *Health Qual Life Outcomes*. 2011;9:118.
- Montero J, Bravo M, Vicente MP, Galindo MP, Lopez JF, Albaladejo A. Dimensional structure of the oral health-related quality of life in healthy Spanish workers. *Health Qual Life Outcomes*. 2010;8:24.
- Jokovic A, Locker D, Stephens M, Kenny D, Tompson B, Guyatt G. Measuring parental perceptions of child oral health-related quality of life. *J Public Health Dent*. 2003;63(2):67-72.
- Thomson WM, Foster Page LA, Gaynor WN, Malden PE. Short-form versions of the parental-caregivers perceptions questionnaire and the family impact scale. *Community Dent Oral Epidemiol*. 2013;41(5):441-450.
- Vieira-Andrade RG, Siqueira MB, Gomes GB, et al. Impact of traumatic dental injury on the quality of life of young children: a case-control study. *Int Dent J*. 2015;65(5):261-268.
- Sun L, Wong HM, McGrath CP. Relationship between the severity of malocclusion and oral health related quality of life: a systematic review and meta-analysis. *Oral Health Prev Dent*. 2017;15(6):503-517.
- Bonecker M, Abanto J, Tello G, Oliveira LB. Impact of dental caries on preschool children's quality of life: an update. *Braz Oral Res*. 2012;26(Suppl 1):103-107.
- Wandera MN, Engebretsen IM, Rwenyonyi CM, Tumwine J, Åström AN, Group P-ES. Periodontal status, tooth loss and self-reported periodontal problems effects on oral impacts on daily performances, OIDP, in pregnant women in Uganda: a cross-sectional study. *Health Qual Life Outcomes*. 2009;7:89.
- Zeng X, Sheiham A, Bernabe E, Tsakos G. Relationship between dental status and oral impacts on daily performances in older Southern Chinese people. *J Public Health Dent*. 2010;70(2):101-107.
- Jokovic A, Locker D, Tompson B, Guyatt G. Questionnaire for measuring oral health-related quality of life in eight- to ten-year-old children. *Pediatr Dent*. 2004;26(6):512-518.
- Jokovic A, Locker D, Stephens M, Kenny D, Tompson B, Guyatt G. Validity and reliability of a questionnaire for measuring child oral-health-related quality of life. *J Dent Res*. 2002;81(7):459-463.
- Locker D, Jokovic A, Stephens M, Kenny D, Tompson B, Guyatt G. Family impact of child oral and oro-facial conditions. *Community Dent Oral Epidemiol*. 2002;30(6):438-448.
- Do LG, Spencer AJ. Evaluation of oral health-related quality of life questionnaires in a general child population. *Community Dent Health*. 2008;25(4):205-210.
- McGrath C, Pang HN, Lo EC, King NM, Hagg U, Samman N. Translation and evaluation of a Chinese version of the child oral health-related quality of life measure. *Int J Paediatr Dent*. 2008;18(4):267-274.
- Barbosa Tde S, Gaviao MB. Validation of the parental-caregiver perceptions questionnaire: agreement between parental and child reports. *J Public Health Dent*. 2015;75(4):255-264.
- Goursand D, Paiva SM, Zarzar PM, Pordeus IA, Grochowski R, Allison PJ. Measuring parental-caregiver perceptions of child oral health-related quality of life: psychometric properties of the Brazilian version of the P-CPQ. *Braz Dent J*. 2009;20(2):169-174.
- Antunes LA, Luiz RR, Leao AT, Maia LC. Initial assessment of responsiveness of the P-CPQ (Brazilian Version) to describe the changes in quality of life after treatment for traumatic dental injury. *Dent Traumatol*. 2012;28(4):256-262.
- Albites U, Abanto J, Bonecker M, Paiva SM, Aguilar-Galvez D, Castillo JL. Parental-caregiver perceptions of child oral health-related quality of life (P-CPQ): psychometric properties for the peruvian spanish language. *Med Oral Patol Oral Cir Bucal*. 2014;19(3):e220-e224.
- Razanamihaja N, Boy-Lefevre ML, Jordan L, et al. Parental-Caregivers Perceptions Questionnaire (P-CPQ): translation and evaluation of psychometric properties of the French version of the questionnaire. *BMC Oral Health*. 2018;18(1):211.
- (WHO) WHO. *Oral Health Surveys Basic Methods*. 5th ed. 2013. ISBN:978-92-4-154864-9
- World Health Organization. *Oral Health Surveys: Basic Methods*. Vol vii. 4th ed. World Health Organization; 1997:66.
- Shanbhog R, Godhi BS, Nandlal B, Kumar SS, Raju V, Rashmi S. Clinical consequences of untreated dental caries evaluated using PUFA index in orphanage children from India. *J Int Oral Health*. 2013;5(5):1-9.
- Alpar R. *Spor, Sağlık ve Eğitim Bilimlerinden Örneklerle Uygulamalı İstatistik ve Geçerlik-Güvenirlilik*. Detay Yayıncılık; 2016:563.

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How to cite this article: Mergen Gultekin I, Ozsin Ozler C, Serdar Eymirli P, Unal F, Atac AS. Cross-cultural adaptation of Turkish version of Parental-Caregiver Perceptions Questionnaire (P-CPQ). *Int J Dent Hygiene*. 2021;00:1-8. doi:[10.1111/idh.12558](https://doi.org/10.1111/idh.12558)