

Correlation of Perception Of Dental Esthetics Between A Prosthodontist And Patient: A Questionnaire Study

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Abstract

Aim: To evaluate & compare esthetic perception by Prosthodontist as well as patient using QDA (Questionnaire on own Dental Appearance) and PEI (Prosthetic Esthetic Index). **Materials and Methodology:** The study was conducted on 44 participants, who were evaluated by a single Prosthodontist by using PEI Index, and another questionnaire filled by patients, evaluating their own esthetic appearance by using QDA index. Data was recorded and Spearman correlation coefficient analysis was done. **Results:** On the basis of Spearman correlation coefficient test, it showed that the R value was 0.374. This value shows weak but positive correlation between PEI & QDA. **Conclusion:** On basis of the results of the study, it can be concluded that the perception of Prosthodontist and perception of patient both are different but there was weak positive correlation between PEI & QDA.

Keywords: Dental Esthetics, Prosthetic Esthetic Index, Questionnaire on own Dental Appearance

Introduction: Restoring masticatory function is the main therapeutic objective in prosthetic dentistry [1,2]. However, it appears that look is becoming a more significant factor in social interactions, which has caused the change in dental practice wherein aesthetics is now regarded as being more significant than any other indication for prosthodontic treatment [3,4]. In addition to being significant for own self, oral aesthetics also has implications for broader psychological wellbeing. In contrast, a different study found that prosthodontic treatment had a positive impact on patient's self-esteem when used to enhance patient's dental aesthetics [6]. Gerritsen et al.[5] discovered that tooth loss, particularly in the anterior aesthetic regions, was associated with impairment of oral health related quality of life.

However, treating patient's with incomplete dentition whose main goal is to improve their dental look is difficult since aesthetic perception is subjective and affected by a variety of factors, including age, gender, and educational background [3,7]. Therefore, it is not surprising that various studies have revealed a disparity between patient's and dentist's perceptions of oral aesthetics [8,9]. People perceive a greater need for aesthetic dental care than dentists[10].

However, it is still unknown to what extent and over which particular aspects of oral aesthetics' dentist's and clients appear to agree or differ. Validated questionnaires are required to compare patients' and professional's perceptions of oral aesthetics in a consistent manner. A professional index for measuring and characterising oral aesthetics in prosthodontic patients is called the prosthetic aesthetic index (PEI). It enables for comprehensive aesthetic evaluation and has recently undergone validation [11]. It has a single-item overall aesthetic evaluation, a summary score, and 13 distinct aesthetic elements. It would be possible to gain insight into the characteristics of aesthetics that may be utilised to predict

patient-reported impairment in oral aesthetics by comparing the information generated by the PEI with the patient-reported impairment of oral aesthetics.

The index could be employed in a clinical environment in addition to being beneficial as a research tool for population studies. Prosthodontics has historically made decisions on rehabilitation based more on experience than on a scientific and organised basis [12,13]. Clinical evaluation and diagnosis could be directed more systematically with the aid of an aesthetic index. The index could also be used as a starting point for discussions with the patient about the therapy's objectives and as a quick way to record how the patient has changed physically as a result of the treatment. The survey used to gauge satisfaction with one's own dental aesthetics is as follows: "Satisfaction with personal Dental Appearance" Questionnaire (QDA).

A questionnaire with 14 items was created based on the recommendations for anterior aesthetics provided by Magne and Belser, and its validity and reliability were assessed. Out of the 14 items, it was demonstrated in the same study that had good reliability and validity and would be suitable for further research. [14] The QDA questionnaire was already translated from German to English by Magne and Belser, and since the study is in Gujarati population, it was also translated into Gujarati language. Therefore, the study's null hypothesis is that patients and prosthodontists perception on dental aesthetics is not similar.

Material and methodology: This study was conducted in the Department of the Prosthodontics on 44 patients. Patients were selected based on inclusion and exclusion criteria mentioned below. Place and source of study was Department of Prosthodontics; Participants were patients reporting to Department of Prosthodontics with at least one missing teeth.

Sample description: For the study to have strong statistical findings, 44 observations from the dentist and the patients were made. These findings were made based on investigations conducted by these authors in 2014,[15]- Dannemandk and Ozhayateb and Mehlc, Wolfarts, Vollratho, Wenzhj, and Kern[16]. Perceptions of dentists and patients were correlated at (5% risk, 80% power).

Statistical Tests:1) Correlation Formula for sample size was as follows: $N = z^2 / (r^2 / 1 - r^2)$ Where, z = z-value from normal table R = correlation; Time scale for study was 2 weeks.

Inclusion criteria: Participants who had the ability to read and answer the questionnaires in English & Gujarati. Participants were patients with at least one tooth missing & requiring Prosthetic rehabilitation. (3rd molar not included)

Exclusion criteria: Participants with mental or physical disabilities or psychological disorders. Participants who have palatal defects. Participants who refuse to give consent for the study.

According to the study's inclusion and exclusion criteria, subjects were chosen. during this time, patients were asked to participate and the same researcher used the PEI to professionally and aesthetically evaluate each participant, and an oral evaluation was also conducted. The QDA [16] questionnaire, which was translated from Gujarati to English and back again by translators, was completed by the participants.

A Likert scale with five groups of option for each item was utilised, similar to the OHIP-49. The items (Q1, Q2, Q3, Q5) that were asked in a positive manner were changed for the future analyses (value changed = value * [-1] + 4). The QDA sum score was calculated by adding up all the items; a score of 44 meant that the participants were completely unhappy, while a score of 0 meant that they were entirely satisfied.

Prosthetic Esthetic Index (PEI): The PEI (ANNEXURE -III) contains the following 13 specific aspects of facial and oral aesthetics: facial symmetry, dental arch symmetry, tooth spaces, morphology of the teeth, colour of the teeth, discoloration of the teeth, teeth position, spacing or crowding and margins of FPD'S, metal from removable dental prostheses, discoloration of gingiva, gingival retraction and wear of the teeth. Moreover these 13 specific aspects, an overall aesthetic evaluation of the face, mouth and teeth of the patient is included in the PEI. The 13 aspects and the overall appearance were rated on a 5-point Likert scale with the following categories (and corresponding scores): really good (Score 1), good (Score 2), average (Score 3), poor (Score 4) and really poor (Score 5). The following three aspects furthermore was categorized as 'non-applicable' (Score 0): tooth spaces, margins of FPD'S and metal from removable dental prosthesis. The participant was instructed to mark the category he or she finds

most appropriate for each aspect in the patient, and the scores of the 13 aspects was added, follow-on in a total score of 10–65 (the PEI score). The greater the score, the poorer the aesthetic appearance [15].

Observation and Results:

TABLE1: SHOWS CORRELATION COEFFICIENT OF PEI AND QDA

Correlations				
			PEI	QDA
Spearman's ratio	PEI	Correlation Coefficient	1.000	.376*
		Sig. (2-tailed)		.012
		N	44	44
	QDA	Correlation Coefficient	.376*	1.000
		Sig. (2-tailed)	.012	
		N	44	44

*. Correlation is significant at the 0.05 level (2-tailed).

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PEI index Values

$$\sum = 1434$$

$$\text{Mean} = 32.591$$

$$\sum(X - M_x)^2 = SS_x = 1138.636$$

QDA index Values

$$\sum = 1144$$

$$\text{Mean} = 26$$

$$\sum(Y - M_y)^2 = SS_y = 0$$

PEI index and QDA index Combined

$$N = 44$$

$$\sum(X - M_x)(Y - M_y) = 0$$

R Calculation

$$r = \frac{\sum((X - M_x)(Y - M_y))}{\sqrt{(SS_x)(SS_y)}}$$

$$r = 0 / \sqrt{(1138.636)(0)} = 0.374$$

Meta Numeric (cross-check)

$r = 0.374$ The value of R is 0.374. High X variable scores correlate negatively with low Y variable scores because of this strong negative connection (and vice versa).

R², or the coefficient of determination, has a value of 0.374.

According to a Spearman correlation coefficient test, the R value was determined to be 0.374. This demonstrates a poor association between PEI and QDA. As a result, there is less overlap between the patient's and prosthodontist's assessments of aesthetic perception.

Discussion: Patients perceive a greater need for aesthetic dental treatment than dentists do, according to various studies [8, 9], which has been demonstrated to be true. To what extent and regarding which particular aspects of oral aesthetics dentists and patients appear to agree or disagree is yet unknown. Validated surveys are required to compare opinions of oral aesthetics between patients and professionals in a consistent manner.

The prosthetic aesthetic index (PEI) is a scientific indicator used to evaluate and quantify the aesthetics of the mouth in prosthodontic patients. It enables for aesthetic evaluation in a broad sense and has recently been validated[11]. It has 13 unmistakable aesthetic qualities, a summary score, and a single-

item overall aesthetic grade. An understanding of the characteristics of aesthetics that may be utilised to predict patient-reported impairment in oral aesthetics could be gained by contrasting the PEI's findings with patient-reported oral aesthetics impairment.

The survey used to gauge satisfaction with one's own dental aesthetics is as follows: "SATISFACTION WITH OWN DENTAL APPEARANCE" (QDA) QUESTION*, QDA QUESTIONNAIRE. A questionnaire with 14 elements was created based on recommendations for anterior aesthetics made by Magne and Belser [13], and its validity and reliability were assessed. [14]

11 of the 14 items from the same study's results shown strong reliability and validity and might be used in subsequent research. [14] It has already been translated by Magne and Belser. Since the Gujarati community had to be included in this study, the QDA questionnaire was translated from German to English and then into Gujarati. The results show that in this study examining the effective recognition of patient-estimated impairment of oral aesthetics, it has been found that a less percentage could be predicted by the professionally evaluated oral aesthetics, with the most notable aspect being that there is no difference in perception of dental aesthetics between a prosthodontist & patient.

Use of standardised, validated questionnaires, which helps in establishing comparisons between groups and studies and in achieving solid results, unlike other studies comparing professional and patient-reported perspectives on aesthetics. The PEI's validity and reliability were examined in a prior study, which makes it valid and reliable tool for evaluating prosthodontic patient's professionally rated aesthetics. Therefore, its use in the study and other validated questionnaires is appropriate. The PEI has only recently been validated, and this study index is used first time in the study. According to QDA, the patient can reflect his or satisfaction with the way their teeth appear.

A questionnaire with 14 elements was created based on the recommendations for anterior aesthetics provided by Magne and Belser, and its validity and reliability were assessed. Out of the 14 items, it was found in the same study that 11 had good reliability and validity and would be suitable for further research. A Likert scale with five options for each item was employed, just like the OHIP-49. The positive-asked items (Q1, Q2, Q3, Q5) were transformed for the ensuing analysis (value transform = value * [-1] + 4). The QDA sum score was calculated by adding together all the items, with a maximum of 44 representing individuals who were utterly dissatisfied and 0 representing people who were entirely satisfied.

According to the Spearman correlation coefficient test, the R value was 0.374. That demonstrates a weak association between PEI and QDA. As a result, when comparing patient perception and prosthodontic perception, there is found to be little correlation between them.

There are several limitations of the study. The participants were chosen from a particular Dental College and not from the overall population; nevertheless, despite the study population's size being sufficient to yield meaningful and trustworthy results, this choice should be taken with caution. Furthermore, despite the fact that all participant's had at least one missing tooth and required oral rehabilitation, they varied widely in terms of their dental health, making it challenging to draw conclusions about certain patient groups.

The study's choice of background variables was another drawback; it is acknowledged that not all factors that might have an impact on the patient-reported impairment were considered. Thought to be significant predictors of aesthetic impairment were those that were included. The participants were aware of the purpose of the study; thus, it stands to reason that they would be sensitive to aesthetic deficits; as a result, there may be a stronger correlation between the variables than there would be in a group of patients who were not informed.

In clinical studies concerning dental appearance, additional further research can be done using psychological test to find out wellbeing of the patient. It will be useful to verify that a study sample includes a normal number of subjects and therefore represents the general population.

Conclusion: A low percentage of patient-reported aesthetic impairments can be recognised by professionals. The most reliable aspect in the recognition is discoloration of the teeth, but also dental arch symmetry and the position and colour of the teeth are important for recognising the aesthetic

impairment. On basis of the results of the study, it can be concluded that the perception of Prosthodontist and perception of patient both are different but there is still weak positive correlation between PEI & QDA.

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Conflicts of interest: There are no conflicts of interest.



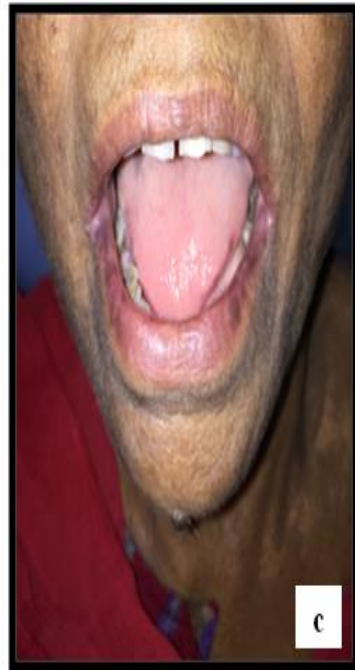
Fig.1 Materials used for diagnostic



Fig.2 shade guide



Fig.2 shade guide





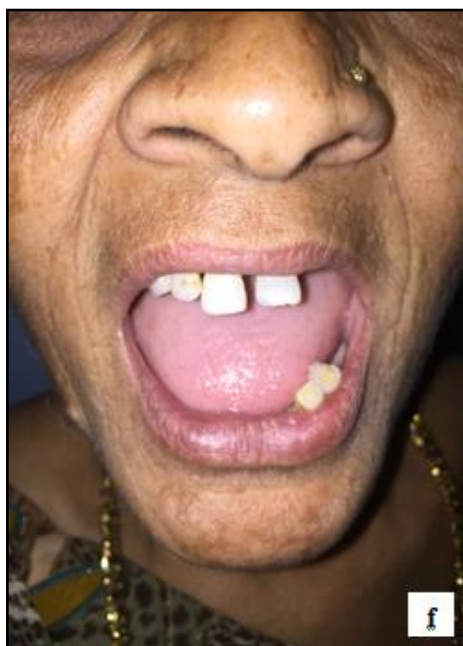


Fig.3 Patients photo (a, b, c, d, e, f)

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