Gingival Architecture and Smile Aspect Perceptions of Students and Patients

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Introduction

The harmonious combination of color, texture, shape and gingival architecture is of utmost importance in the aesthetic perception of smile.

Objectives

Qualitative evaluation/comparison of patients and Dentistry student's perceptions regarding the gingival architecture and aesthetic appearance of the smile.

Material and Methods

An observational, cross-sectional study approved by Ethics Committee of UFP. Two photographs were taken (intra/extra-oral) to 35 patients (74.3%-women) of Pedagogical Dentistry Clinic-UFP, which subsequently completed a survey (Personalized Esthetic Evaluation) on their gingival/smile appearance (Table 1). Thirty-eight students of FCS-UFP registered gingival criteria (Esthetic Checklist; Fradeani, 2004) after observing those photographs. Descriptive statistical analysis/comparison with chi-square test (α=0.05).

Table 1–Pairing between patient questionnaire questions and checklist questions for dentistry students (DS) for the statistical analysis of data.

Questions from patient questionnaire on gingival aesthetic	Questions from Dentistry Students (DS) checklist on gingival aesthetic
Do you like the colour of your gums?	- Is the tonality of the gums within normal, slightly altered or severely altered?
Do your gums show irregular contours?	- Is the gingival margin symmetrical or asymmetrical? - Is the gingival Zenith regular or irregular? - Are the papillae present or absent? - Does the gum present: gingival inflammation, hypertrophy or recession?
Are your gums exposed when you smile?	- Is the gingival smile high, medium or small?
Do you consider your gums to be healthy?	- Does the gum present: gingival inflammation, hypertrophy or recession? - Is the tonality of the gums within normal, slightly altered or severely altered? - Is gingival recession present? - Change in position or similar position of the canines relative to central incisors.
If your gums were improved, would you be happier?	- Are the papillae present or absent? - Does the gum present: gingival inflammation, hypertrophy or recession? - Is the tonality of the gums within normal, slightly altered or severely altered? - Is gingival recession present? - Change in position or similar position of the canines relative to central incisors
Are you happy with the appearance of your gums?	- Is the gingival margin symmetrical or asymmetrical? - Is the gingival zenith regular or irregular? - Are the papillae present or absent? - Does the gum present: gingival inflammation, hypertrophy or recession? - Is the gingival smile high, medium or small? - Is the tonality of the gums within normal, slightly altered or severely altered? - Is gingival recession present? - Change in position or similar position of the canines relative to central incisors.

RESULTS

Patient' self-assessment: 94.3% likes their gingival colour, 74.3% regular gingival margins, 77.1% has no gingival exposition, healthy gums 74.3%, but 48.6% would improve their gums. Checklist of gingival parameters by Students Graduation finalists in Dentistry (GDS): symmetric margin (60.3%), regular zenith (53.5%), papillae present (80%), alterations (gingival inflammation/recession) (61.9%), ordinary normal tonality (48.6%) and gingival aesthetic line (51.4%). Agreement relationship between patients and students perceptions, in all evaluated criteria (p<0.05) (Tables 2 to 6). More studies should be conducted to compare qualitative/quantitative aspects of the gingival architecture.

Table 2- Comparison (%) of patient and dentistry student (GDS) perceptions about the color of the gums and the gingival exposure.

		PATIENT PERCEPTION	
		Likes the colour of gums	
PERCEPTION GDS		No	Yes
Tonality of gums	Normal	3.3%	**96.7%**
	Slight alteration	6.3%	**93.7%**
	Severe alteration	**18.0%**	82.0%
		p≤0.001	
		Gingival exposure	
		No	Yes
Gingival Smile	Low	**71.7%**	28.3%
	Medium	**75.5%**	24.5%
	High	83.9%	**16.1%**
		p=0.001	

Table 3- Comparison (%) of patient and the GDS' perceptions with gingival architectural parameters.

		PATIENT PERCEPTION	
		Gingival Contour	
PERCEPTION GDS		Regular	Irregular
Gingival Margin	Symmetric	79.4%	20.6%
	Asymmetric	66.5%	33.5%
		p≤0.001	
Gingival Zenith	Regular	81.7%	18.3%
	Irregular	65.8%	34.2%
		p≤0.001	
Gingival alterations	Inflammation	72.0%	28.0%
	Hypertrophy	76.2%	23.8%
	Recession	68.3%	31.7%
	All of the above	48.1%	51.9%
	Inflammation and hypertrophy	57.9%	42.1%
	Inflammation and recession	56.8%	43.2%
	Hypertrophy and recession	30.0%	70.0%
	None of the above	84.5%	15.5%
		p≤0.001	
Papillae	Present	77.3%	22.7%
	Absent	62.4%	37.6%
		p≤0.001	

Table 4- Comparison (%) of patient perception about existence of healthy gums and GDS perception with gingival architectural

		PATIENT PERCEPTION	
		Healthy Gums	
PERCEPTION GDS		No	Yes
Gingival alterations	Inflammation	**23.9%**	76.1%
	Hypertrophy	**35.0%**	65.0%
	Recession	**43.4%**	56.6%
	All of the above	**48.1%**	51.9%
	Inflammation and hypertrophy	**47.4%**	52.6%
	inflammation and recession	**50.0%**	50.0%
	Hypertrophy and recession	**60.0%**	40.0%
	None of the above	13.2%	**86.8%**
		p≤0.001	
Tonality of gums	Normal	22.0%	**78.0%**
	Slight alteration	26.9%	**73.1%**
	Severe alteration	**43.0%**	57.0%
		p≤0.001	
Gingival recession	No	16.6%	**83.4%**
	Yes	**40.4%**	59.6%
		p≤0.001	
Gingival aesthetic line	Position alteration	**30.2%**	69.8%
	Similar position	21.5%	**78.5%**
		p≤0.001	

Table 5- Comparison (%) of perception the patients about the question "improve your gums" and the register the GDS about gingival aesthetic.

		PATIENT PERCEPTION	
		Healthy Gums	
PERCEPTION GDS		No	Yes
Papillae	Present	**53.7%**	46.3%
	Absent	42.5%	**57.5%**
		p=0.001	
Gingival Alterations	Inflammation	49.0%	51.0%
	Hypertrophy	47.5%	52.5%
	Recession	45.5%	54.5%
	All of the above	48.1%	51.9%
	Inflammation and hypertrophy	36.8%	63.2%
	Inflammation and recession	48.9%	51.1%
	Hypertrophy and recession	30.0%	70.0%
	None of the above	58.2%	41.8%
		p=0.024	
Tonality of gums	Normal	**56.5%**	43.5%
	Slight alteration	48.6%	51.4%
	Severe alteration	35.0%	65.0%
		p≤0.001	
Gingival Recession	No	**53.6%**	46.4%
	Yes	47.9%	52.1%
		p=0.045	
Gingival aesthetic line	Position alteration	48.6%	51.4%
	Similar position	54.1%	45.9%
		p=0.045	

Table 6- Comparison (%) of patient satisfaction about "gingival appearance" and GDS' evaluation of gingival architectural parameters.

		PATIENT PERCEPTION	
		Healthy Gums	
PERCEPTION GDS		No	Yes
Gingival Margin	Symmetric	6.9%	93.1%
	Asymmetric	18.4%	81.6%
		p≤0.001	
Gingival Zenith	Regular	5.8%	94.2%
	Irregular	17.9%	82.1%
		p≤0.001	
Papillae	Present	8%	92%
	Absent	25.2%	74.8%
		p≤0.001	
Gingival alterations	Inflammation	10.4%	89.6%
	Hypertrophy	16.3%	83.8%
	Recession	15.2%	84.8%
	All of the above	44.4%	55.6%
	Inflammation and hypertrophy	36.8%	63.2%
	Inflammation and recession	15.9%	84.1%
	Hypertrophy and recession	50%	50%
	None of the above	5.9%	94.1%
		p≤0.001	
Gingival Smile	Low	4.4%	95.6%
	Medium	12.1%	87.9%
	High	14.5%	85.5%
		p=0.001	
Tonality of gums	Normal	9.8%	90.2%
	Slight alteration	11.1%	88.9%
	Severe alteration	24%	76%
		p≤0.001	
Gingival recession	No	7.5%	92.5%
	Yes	17.8%	82.2%
		p≤0.001	
Gingival aesthetic line	Position alteration	15.9%	84.1%
	Similar position	7.2%	92.8%
		p≤0.001	

Conclusions

The comparison of patients and student's perceptions proved to be compliant in all assessed parameters of gingival/smile aspects, with occurring variation on the degree of agreement (low to high) in some parameters.

Clinical Implications

The analysis of the patient/professional perceptions, on gingival architecture/smile aspects, enables communication synergism on esthetic/cosmetic rehabilitator's decisions.

References (1)European Journal Orthodontic (2014). Perception of laypersons and dental professionals and students as regards the aesthetic impact of gingival plastic surgery,pp.173-178. (2)Brazilian Dental Journal (2013). Perception of smile esthetics varies between patients and dental professionals when recession defects are present, pp.385-390. (3)Fradeani, M. e Barducci, G. (2004). Esthetic Rehabilitation in Fixed Prosthodontics – Volume 1: Esthetic Analysis. Chicago, Quintessence.

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