

The impact of social context on the perception of dental appearance in 8-9 years old children

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Abstract

Background: Several studies have tried to clarify the role that malocclusion has on an individual's self-concept or on level of satisfaction with one's dental or facial appearance, but little research on psycho-social attitudes towards malocclusion has been conducted on pre-adolescent children. The aim of our study was to investigate the impact of socio-economic status (SES) on the perception of dental appearance in third-grade school-children.

Methods: A pilot survey was conducted in 2008 in order to collect data from a representative sample of 101 eight-nine years-old children (62 M - 39 F), examined by trained orthodontists. Each child filled in the Children's Orthodontic Attitude Survey (COAS) questionnaire, and then they were examined by 3 residents. The clinical parameters were correlated with the questionnaire findings and with the SES. The latter was assessed using a previously validated scale, graded into classes from I to V reflecting the parents' job activity.

Statistical analysis: Statistical analysis was performed by using SPSS 12.0 for Windows, using Chi Square Test for nominal variables and Kruskal-Wallis test for ordinal scales. Statistical significance was set at $p < 0.05$.

Results: A statistical association was found between clinical status and SES only for the Oral Hygiene level ($p = 0.022$). Chi-Square test also showed a statistically significant association between SES and R.O.M.A. Index ($p = 0.009$). The relation between questionnaire findings and SES was significantly observed only for the following question "Does the way your teeth look bother you" ($p = 0.022$).

Conclusions: Familial SES is not a determinant in children's satisfaction with dental appearance. Children with different SES demonstrate they have almost completely the same approach towards braces.

Key words: self-perception, malocclusion, aesthetics, behavioural, orthodontics

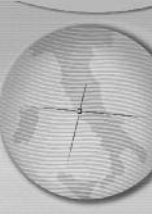
Introduction

Patient compliance is considered a major problem in orthodontics. The actual compliance rate has been proven to be associated with many variables. Among those, characteristics of the patient and his family background, such as the socio-economical context, the peer's opinion and the self-aesthetical perception are interpreted as determinants of treatment adherence. In fact, as Trullsson and coll. [1] suggested, "motivation for the decision to undergo orthodontic treatment seemed to be social norms, and the beauty culture in their reference group and in society in general. The teenagers were not fully conscious of these external influences. Their opinion, as a group, was that they had made an independent decision to

undergo orthodontic treatment."

By the age of 6 years, children have internalised cultural values of physical attractiveness and by age of 8 years their criteria for attractiveness are the same as those of adults [2] and the infant's visual preference for human faces has been confirmed in many psychological studies [3]. The appearance of the mouth and smile plays an important role in judging facial attractiveness [4]. These perceptions of facial aesthetics influence the psychological development from early childhood to adulthood [5].

Considering the socio-economical status (SES), in Italy there isn't an available individual classification, territorial data are based on personal economic consumption rather than



income and education. Another possible classification of personal income could come from the Italian financial acts and the different levels of income tax rates but this data is not easily inferable from statistical sampling including adolescents. For these reasons, the combination of the parents' educational levels and work activities could be considered a valid proxy of the SES [6].

Our intent was to assess satisfaction with dental appearance in 8-9 years old schoolchildren with different social and geographical context in order to evaluate if a difference in socio-economic status (SES) plays a determinant role or not in the infants' aesthetical perception.

Methods

In this pilot epidemiological survey, data were collected from a representative sample of 101 eight-nine years-old schoolchildren (62 Males - 39 Females); of them 81 resided in South Italy (Calabria) and 19 in Lazio. Each child filled in the Italian version of the Children's Orthodontic Attitude Survey (COAS) questionnaire, previously validated [7] and then they were clinically examined by three residents.

The COAS questionnaire was developed by Albino et al in 1982 [8]. In 1995, Sheats et al. [9] developed a modification of the COAS for use on a younger population of children, namely third-grade children (Figure 1). Before then, no research studied children who are candidates for early treatment in the 8-9 years old age group. Malocclusion severity and orthodontic treatment need were assessed using R.O.M.A. Index [10], which is a validated instrument, created to evaluate the malocclusion risk in children with precocious or deciduous mixed dentition. This index is used to individuate not only orthodontic treatment need for children in growth age but also intervention time and treatment costs in the strength of the severity of the score.

The clinical parameters were correlated with the questionnaire findings and with the social status.

Information about family income was difficult to obtain from children of this age, therefore, SES was estimated considering parents' educational levels and work activities. A socio-economic family index, derived from the combination of parents' work activities, and previously validated [6], was used. The SES index is graded into hierarchical classes from I to V reflecting the parents' job (I Very high; II High; III Middle; IV Middle Low; V Low).

Statistical analysis

Data from the questionnaires were collected in a suitable relational database and analysed. Significance was assessed by using Chi Square Test for nominal variables and Kruskal-Wallis test for ordinal scales. Statistical significance was set at $p < 0.05$. Statistical analysis was performed by using SPSS 12.0 for Windows.

Results

The characteristics of the sample are shown in Table 1, according to the Oral status, SES and demographic variables.

The Chi Square Test was not applicable to the 5 grades of social status, so that we grouped grades IV and V in a Middle Low-Low grade and grades I and II in a Very High-High class. The relation between clinical status and SES was significant only for the Oral Hygiene value (see Table 2), that was worse in the lowest classes ($p = 0.022$). Chi-Square test also showed a statistically significant association between SES and R.O.M.A. Index ($p = 0.009$) (Table 3). The relation between questionnaire findings and SES was significant only for the question n.6 "Does the way your teeth look bother you?" ($p=0.022$) (Table 4).

Discussion

Several studies show evidence of a relationship between socio-economic level and health status. As demonstrated by Lowry et al. [11], higher family income is associated with lower alcohol and cigarette consumption and a lower level of sedentary behaviour.

The definition for SES seems to be extremely variable: Giles-Corti et al., evaluates SES according to residence (zipcode) in low, middle or high income geographical areas [12]; Lindstrom et al., considers employment exclusively [13]; while Gordon-Larsen et al., distinguishes between the different socio-economic levels based on family income, for example, low (up to \$26200), middle (between \$26200 and \$50000) and high ($> \$50000$) [14]. In Italy there isn't an individual SES classification available, territorial data (ISTAT data) is based on personal economic consumption rather than income and education. Another possible classification of personal income comes from the Italian financial acts and the different levels of income tax rates. However, this data is not easily inferable from statistical sampling including adolescents.

Figure 1. Modified COAS Questionnaire - English Version

1 Would you like to have braces ?	Yes, very much	Yes, a little bit	No, not at all
2 Do you think braces would look silly on your teeth ?	Yes, very much	Yes, a little bit	No, not at all
3 Do you think your teeth are crooked ?	Yes, very much	Yes, a little bit	No, not at all
4 Do you think braces look cool on other people's teeth?	Yes, very much	Yes, a little bit	No, not at all
5 Do you think you need braces ?	Yes, very much	Yes, a little bit	No, not at all
6 Does the way your teeth look bother you ?	Yes, very much	Yes, a little bit	No, not at all
7 Do you think braces bother people who wear them?	Yes, very much	Yes, a little bit	No, not at all
8 Do you think you would mind wearing braces ?	Yes, very much	Yes, a little bit	No, not at all
9 Are you happy with the way your teeth look?	Yes, very much	Yes, a little bit	No, not at all
10 Do your classmates tease you about your teeth ?	Yes, very much	Yes, a little bit	No, not at all
11 Do your brothers or sisters tease you about your teeth ?	Yes, very much	Yes, a little bit	No, not at all
12 Does it bother you to smile because of the way your teeth look?	Yes, very much	Yes, a little bit	No, not at all
13 Would braces on your teeth bother you ?	Yes, very much	Yes, a little bit	No, not at all
14 Do you want to have your teeth straightened ?	Yes, very much	Yes, a little bit	No, not at all
15 Do you think braces are hard to take care of ?	Yes, very much	Yes, a little bit	No, not at all
16 Do you think braces look ugly on a person's teeth?	Yes, very much	Yes, a little bit	No, not at all
17 Do you think it is important to have straight teeth?	Yes, very much	Yes, a little bit	No, not at all
18 Do you think people need straight teeth to eat properly?	Yes, very much	Yes, a little bit	No, not at all
19 Do you think you need straight teeth to eat properly?	Yes, very much	Yes, a little bit	No, not at all
20 Do you think people need straight teeth to talk properly?	Yes, very much	Yes, a little bit	No, not at all
21 Do you think you need straight teeth to talk properly?	Yes, very much	Yes, a little bit	No, not at all
22 Do you think people need straight teeth to look good?	Yes, very much	Yes, a little bit	No, not at all
23 Do you think you need straight teeth to look good?	Yes, very much	Yes, a little bit	No, not at all
24 Do you think crooked teeth are ugly?	Yes, very much	Yes, a little bit	No, not at all
25 Do you wish your teeth were straight?	Yes, very much	Yes, a little bit	No, not at all
26 If your teeth were crooked, would you want to get them straightened even if it cost a lot of money?	Yes, very much	Yes, a little bit	No, not at all
27 If your teeth were crooked, would you want to get them straightened even if it took several years?	Yes, very much	Yes, a little bit	No, not at all
28 Have you ever seen a child wear a night brace or headgear?	Yes, very much	Yes, a little bit	No, not at all
29 If you have to wear braces, would you be willing to wear a night brace or headgear?	Yes, very much	Yes, a little bit	No, not at all
30 Do you think braces hurt?	Yes, very much	Yes, a little bit	No, not at all
31 Suppose your teeth were crooked and you owned a pair of Nike or Reebok. Would you be willing to give up your Nike or Reebok in order to have your teeth straightened?	Yes, very much	Yes, a little bit	No, not at all
32 Suppose your teeth were crooked and you had your own personal TV. Would you be willing to give up your TV in order to have your teeth straightened?	Yes, very much	Yes, a little bit	No, not at all
33 Suppose your teeth were crooked and you had a Nintendo. Would you be willing to give up your Nintendo in order to have your teeth straightened?	Yes, very much	Yes, a little bit	No, not at all
34 Suppose your teeth were crooked and you Would you be willing to give up your teeth straightened?	Yes, very much	Yes, a little bit	No, not at all
35 Suppose your teeth were crooked and you had a chance to take a family vacation at Disney World. Would you be willing to give up your vacation in order to have your teeth straightened?	Yes, very much	Yes, a little bit	No, not at all

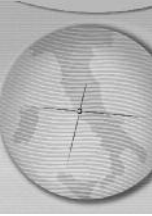


Table 1. Characteristics of the sample.

		Frequencies (%)
Age	8 years old	63 (62.4)
	9 years old	38 (37.6)
Sex	Male	62 (61.4)
	Female	39 (38.6)
Socio-Economic Status	Very High-High	25 (24.8)
	Middle	39 (38.6)
	Middle Low-Low	37 (36.6)
Italian Region of origin	Calabria	82 (81.2)
	Lazio	19 (18.8)
Under dental treatment	Yes	4 (4.0)
	No	97 (96.0)
Oral Hygiene	Poor	17 (16.8)
	Fair	56 (55.4)
	Good	28 (27.7)
R.O.M.A. Index	2	4 (6.1)
	3	43 (65.2)
	4	19 (28.8)

Table 2. Relation between Oral Hygiene value and SES.

		Very high-High	Middle	Middle low-Low	p-value
Oral Hygiene	Poor	11.8%	41.2%	47.1%	0.022
	Fair	17.9%	39.3%	42.9%	
	Good	46.4%	35.7%	17.9%	

Table 3. Relation between R.O.M.A. Index and SES.

		Very high-High	Middle	Middle low-Low	p-value
R.O.M.A. Index	2	50.0%	50.0%	0.0%	0.009
	3	9.3%	30.2%	60.5%	
	4	26.3%	52.6%	21.1%	

Table 4. Relation between question “Does the way your teeth look bother you ?” and SES.

		Very high-High	Middle	Middle low-Low	p-value
Question n. 6	No	33.3%	33.3%	33.3%	0.022
	Yes	8.6%	48.6%	42.9%	

In the observed samples, although no systematic effort was made to select subjects, no one was with conspicuous facial impairment, such as cleft lip or palate and the two groups of children have no statistical differences in the clinical parameters examined.

Children with different social context demonstrate they have almost completely the same approach towards braces. Conversely, urban subjects are statistically more worried about the way their teeth look. As suggested by Burden [15] peer group at school and treatment rate in the area of living may have had greater influence on perceived need for treatment than whether or not treatment was readily available.

We know the sample size is not adequate, but

this is only a pilot-study and we are planning to extend the sample.

Conclusions

Children with different social context demonstrate they have almost completely the same approach towards braces. The only question of the COAS questionnaire related to SES was question n.6 “Does the way your teeth look bother you?”. This probably means that children from the highest socio-economic status group are more worried about their dental appearance than children with lower SES. Conversely, malocclusion severity and oral hygiene are significantly related to socio-economic status.

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