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#45 PAPER 60 - THE INFLUENCE OF SOCIO-ECONOMIC STATUS ON ORAL HEALTH OF SCHOOLCHILDREN FROM THE MOLDAVIAN REGION OF ROMANIA

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Abstract
The study accomplished a cross-sectional survey based on standardized questionnaires (COHIP and SESq) on 184 children from urban public schools (Iasi and Suceava) located in the Moldavian region of Romania, in order to evaluate the influence of socio-economic status (SES) on the oral health and the quality of life (QoL). The results showed a very good QoL, a medium level of SES and statistical correlations between the average scores of COHIP and SES and identified the socio-economic predictors concerning families of children with very good oral health and QoL.
Keywords*: oral health; quality of life; school children; socio-economic status; cross-sectional survey*

1. INTRODUCTION

A human community is characterized by a geographical area, certain life conditions, a profile of health status and risk of disease, caused by specific social and economic indicators. Health concepts suggest that the dental health must be defined in terms regarding the physical, psychological and social well-being, related to dental status (Cohen & Jago, 1976). Over the last years, there have been developed instruments to evaluate the oral health reported to the quality of life (OHRQoL), that evaluate the individual's own perspective about his own oral health and its impact on the daily well-being, emphasizing especially on functional parameters and less on the clinical dental parameters (Locker & Miller, 1994; Gherunpong, Tsakos, & Sheiham, 2004).

Various measurements for the quality of life (QoL) and the socio-economic factors were developed and used to evaluate the social, dental well-being and the impact on OHRQoL (Slade, 1997; Allen, 2003). Thus, the Child Oral Health Impact Profile Questionnaire (COHIP) was developed to measure OHRQoL at children with ages between 8-15 years old (Broder & Wilson-Genderson, 2007) and the Quick European Socio-Economic Status Questionnaire (SESq) was developed to evaluate the families' socio-economic status (SES) (Gonzales-Gross, 2014).

The purpose of our study was to establish the correlations between SES and the impact of self-reported OHRQoL on a sample of schoolchildren from several urban public schools from the Moldavian region of Romania (Iasi and Suceava cities), using two standardized questionnaires.

2. MATERIAL AND METHODS

The cross-sectional survey was conducted on standardized questionnaires and was carried out in May-June 2015, by a team of specialists from the Surgical Department and the Medical Informatics and Biostatistics Department, Faculty of Dental Medicine, University of Medicine and Pharmacy "Grigore T. Popa" Iaşi, Romania, on 184 children (99 boys – 53.8% and 85 girls – 46.2%), with ages between 8-15 years old. The children attended public schools located in the urban area, from two major cities from North-East of Romania (Iasi and Suceava). The participants' selection criterion was the children's age. The subjects independently responded to the standardized COHIP questionnaire (Broder & Wilson-Genderson, 2007) and SESq (Gonzales-Gross, 2014). The study was conducted in accordance with the Declaration of Helsinki of 1975, revised in 2000, as informed consent was obtained from schools and from pupils' parents.

In order to evaluate the self-reported OHRQoL, the COHIP questionnaire translated into Romanian was used as assessment instrument for all children. The data were collected from children's answers to the 38 questions of the questionnaire, grouped into seven sub-scales: (1) oral health, (2) functional well-being, (3)

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emotional well-being, (4) school environment, (5) self-image, (6) treatment expectations and (7) global health [Broder & Wilson-Genderson, 2007]. The SES questionnaire, translated into Romanian, was used as assessment instrument for all children, in order to evaluate the self-reported SES of their families, composed of 8 questions grouped into five domains: (1) living conditions, (2) family structure, (3) employment status of both parents, (4) education level of both parents and (5) family income according to the occupation of both parents [Gonzales-Gross, 2014].

The COHIP sub-scales scores were calculated summing the answers to their specific questions, as well as the overall OHRQoL score (the first 34 items), which totaled the scores for the first five sub-scales (limit values 0-136) (Broder & Wilson Genderson, 2007). The SESq questions were interpreted as qualitative variables, with binary or ordinal answers.

The statistical analysis was performed in SPSS 16.0 (SPSS Inc., Chicago, IL) for Windows. The numerical values were characterized using the parameters of descriptive statistics: average value and standard deviation (SD). We used the Kolmogorov-Smirnov fitting test with normal distribution, the nonparametric Mann-Whitney test (U) and Kruskal-Wallis test (K-W) in order to compare the COHIP scores between genders and the SESq domains and Pearson's Chi-square test ($\chi 2$) in order to compare the SESq answers between genders. We considered statistically significant a value of $p \leq 0.05$. Afterwards we applied the forward stepwise bivariate logistic regression model so as to identify the potential socio-economic predictive factors for very good values (over average) of OHRQoL scores. The Hosmer-Lemeshow goodness-of-fit test (HL test) was applied to select the most suitable model considering a $p>0.05$ as a good fit value. Any association between the predictive factors was tested using correlations, in order to eliminate the multicollinearity problems.

3. RESULTS

The schoolchildren answered to all questions of the questionnaire and the COHIP scores were calculated individually as well as average values. No statistically significant differences were found between genders ($p>0.05$) (table 1).

Table 1 – Differences between the children COHIP scores on gender

Scores	Total (n=184)		Male (n=99)		Female (n=85)		Test
	Mean	SD	Mean	SD	Mean	SD	U
Oral health	36.81	5.619	36.49	6.353	37.18	4.632	0.547
Functional well-being	26.17	3.539	25.95	3.916	26.42	3.045	0.622
Emotional well-being	30.57	4.291	31.09	3.970	29.95	4.585	0.122
School environment	18.57	2.144	18.63	2.122	18.51	2.180	0.675
Self-image	21.34	4.901	21.13	5.233	21.58	4.502	0.690
Overall OHRQoL	133.45	13.441	133.29	13.743	133.64	13.159	0.831
Treatment expectancy	8.04	1.852	7.86	1.857	8.26	1.833	0.140
Global health	7.39	1.511	7.44	1.680	7.33	1.295	0.501

No statistically significant differences $p>0.05$

Table 2 – Differences between children's COHIP scores caused by the family's SES

Scores	Overall OHRQoL			Treatment expectancy			Global health		
	Mean	SD	*p*	Mean	SD	*p*	Mean	SD	*p*
Living conditions			0.014*			0.001**			0.089
good	138.55	14.259		9.07	1.438		7.86	1.505	
medium	132.50	13.111		7.85	1.861		7.30	1.501	
Family structure			0.028*			0.693			0.068
functional	133.78	13.842		8.03	1.821		7.43	1.511	
dysfunctional	130.39	8.603		8.17	2.176		7.00	1.495	
Employment status of mother			0.162			0.209			0.131
high	135.77	16.074		8.13	2.045		7.48	1.749	
medium	132.31	13.969		8.14	1.710		7.46	1.217	
low	136.00	13.771		8.55	1.549		7.76	1.431	
undefined	132.23	10.573		7.58	2.014		7.04	1.720	
Employment status of father			0.000****			0.000****			0.575
high	141.00	12.419		8.98	1.611		7.67	1.443	
medium	134.80	13.114		8.23	1.592		7.17	1.654	
low	131.18	12.467		7.91	1.929		7.16	1.758	
undefined	129.03	12.884		7.38	1.836		7.49	1.247	
Education level of mother			0.297			0.000****			0.923
college/faculty	135.09	15.225		8.31	1.997		7.40	1.666	
high school	132.28	12.967		7.63	1.823		7.40	1.497	
without	135.74	13.009		9.18	1.193		7.35	1.433	
Education level of father			0.000****			0.000****			0.108

college/faculty	140.23	13.301		8.89	1.701		7.64	1.448	
high school	131.67	11.822		7.64	1.771		7.41	1.585	
without	130.29	15.542		8.20	1.937		7.03	1.317	
Family income			0.006**			0.005**			0.004**
high	140.27	13.748		8.58	1.858		7.62	1.941	
medium	132.41	12.916		7.80	1.820		7.47	1.420	
low	131.75	14.632		9.00	1.686		6.55	1.276	

No statistically significant differences $p>0.05$; the significance level of *$p<0.05$; **$p<0.01$; ****$p<0.0001$.

We compared the children's families socio-economic levels deriving from SESq and we found statistically significant differences between genders regarding the family's structure (p=0.008). The highest percentages were recorded among children's families with: medium living conditions (84.2%), functional family structure (90.2%), medium employment status of mother (38.6%) and undefined employment status of father (33.2%), high school education level of mother (62.5%) and father (57.1%) as well as medium family income (75.0%). We found multiple statistically significant differences between the values of overall OHRQoL, treatment expectancy and global health scores reported to the socio-economic levels of children's families (p<0.05) (table 2).

We used a binary logistic regression model in order to identify the socio-economic predictors for very good values of the COHIP scores (HL test, p>0.05) (table 3).

Table 3 – Socio-economic predictors for COHIP scores

Predictors	Yes		No		Test		OR	95% CI	*p*
	n	%	n	%	%	HL			
Very good oral health	47	25.5	137	74.5	75.5	1.000			
Family has a private car	25	53.2	72	52.6			0.117	0.039-0.345	0.000
Family has at least two private cars	15	31.9	13	9.5			0.301	0.126-0.719	0.007
Very good functional well-being	136	73.9	48	26.1	73.9	0.225			
Family has a private car	78	57.4	19	39.6			0.427	0.150-1.212	0.110
Family has at least two private cars	22	16.2	6	12.5			1.120	0.399-3.144	0.830
The child has a private room	90	66.2	23	47.9			0.486	0.243-0.972	0.041
Very good emotional well-being	144	78.3	40	21.7	78.3	1.000			
Family has a private car	83	57.6	14	35.0			0.280	0.086-0.915	0.035
Family has at least two private cars	24	16.7	4	10.0			0.988	0.297-3.282	0.984
Very good self- image	51	27.7	133	72.3	75.5	0.515			
Family has two children	25	49.0	69	51.9			0.213	0.071-0.637	0.006
Family has more than two children	15	29.4	19	14.3			0.570	0.241-1.349	0.201
The child lives with both natural parents	27	52.9	88	66.2			1.043	0.456-2.387	0.920
The child lives with one natural parent	11	21.6	33	24.8			3.990	1.259-12.652	0.019
The child lives with one natural parent and one step parent	8	15.7	11	8.3			22.527	2.168-234.037	0.009
Very good overall OHRQoL	76	41.3	108	58.7	67.4	1.000			
Low family income	8	10.5	12	11.1			0.123	0.044-0.347	0.000
Medium family income	47	61.8	91	84.3			0.159	0.042-0.596	0.006
Very good treatment expectancy	85	46.2	99	53.8	67.9	0.565			
Family has a private car	46	54.1	51	51.5			0.117	0.038-0.358	0.000
Family has at least two private cars	20	23.5	8	8.1			0.331	0.125-0.882	0.027
The child lives with both natural parents	52	61.2	63	63.6			2.430	1.076-5.489	0.033
The child lives with one natural parent	26	30.6	18	18.2			0.097	0.016-0.572	0.010
The child lives with one natural parent and one step parent	3	3.5	16	16.2			7.267	1.109-47.624	0.039
Low family income	15	17.6	5	5.1			0.532	0.204-1.389	0.198
Medium family income	54	63.5	84	84.8			8.789	1.447-53.400	0.018
Very good global health	34	18.5	150	81.5	82.1	0.988			
The child has a private room	29	85.3	84	56.0			0.257	0.089-0.742	0.012
Family has two children	15	44.1	82	54.7			0.261	0.087-0.779	0.016
Family has more than two children	19	55.9	68	45.3			0.321	0.116-0.887	0.028
Low family income	0	0.0	20	13.3			0.355	0.134-0.938	0.037

4. DISCUSSIONS

Our study investigated the influence of SES on the OHRQoL on a sample of schoolchildren from several urban public schools from the Moldavian region of Romania (Iasi and Suceava cities) by comparing the mean values of COHIP scores between SES levels and identified their families' socio-economic predictors, using a cross-sectional survey based on standardized questionnaires.

All mean scores of COHIP sub-scales and schoolchildren's general OHRQoL were classified as "very good" of QoL in the terms of self-reported health state and no significant differences were found between genders, meaning that the living conditions from the studied geographic area were adequate to maintain health status. Generally, the studied children's families SES level was classified as "medium".

The statistical correlations between the means of COHIP scores and SES revealed highly statistically significant differences which means that the family's socio-economic level influences the children's QoL. We have also identified with an acceptable precision, the social-economic predictors for a very good oral health, such as: family owning 1-2 private cars, family's composition of two or more children, child owning his own private room, children being cared by natural parents, having a "medium" level of income. The existence of 1-2 private cars within the family has predictive potential for very good scores of oral health, functional well-being, emotional well-being and treatment expectancy. The existence of brothers/sisters in the family is a prediction factor for very good scores of self-image and global health scores. Children owning their private room is a predictor for functional well-being and treatment expectancy scores. Whether the family is functional does not influence the self-image and treatment expectancy scores, but family income affects the overall OHRQoL, treatment expectancy and global health scores.

The scientific literature has very limited studies of this kind for the European countries, which report results specific for the investigated children (Vereecken et al., 2009; Baran & Nalcaci, 2011).

5. CONCLUSIONS

Our study proves that the socio-economic factors regarding schoolchildren's families from the investigated geographical area, affects the self-reported oral health status related to the personal well-being and QoL, measured by functional and psychological dimensions. Similar future studies can be extended to young adults from different geographical areas.

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