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Oral Health-Related Risk Behaviours and Attitudes among Croatian Adolescents – Multiple Logistic Regression Analysis

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A B S T R A C T

The aim of this study was to explore the patterns of oral health-related risk behaviours in relation to dental status, attitudes, motivation and knowledge among Croatian adolescents. The assessment was conducted in the sample of 750 male subjects – military recruits aged 18–28 in Croatia using the questionnaire and clinical examination. Mean number of decayed, missing and filled teeth (DMFT) and Significant Caries Index (SiC) were calculated. Multiple logistic regression models were crated for analysis. Although models of risk behaviours were statistically significant their explanatory values were quite low. Five of them – rarely toothbrushing, not using hygiene auxiliaries, rarely visiting dentist, toothache as a primary reason to visit dentist, and demand for tooth extraction due to toothache – had the highest explanatory values ranging from 21–29% and correctly classified 73–89% of subjects. Toothache as a primary reason to visit dentist, extraction as preferable therapy when toothache occurs, not having brushing education in school and frequent gingival bleeding were significantly related to population with high caries experience (DMFT≥14 according to SiC) producing Odds ratios of 1.6 (95% CI 1.07–2.46), 2.1 (95% CI 1.29–3.25), 1.8 (95% CI 1.21–2.74) and 2.4 (95% CI 1.21–2.74) respectively. DMFT≥14 model had low explanatory value of 6.5% and correctly classified 83% of subjects. It can be concluded that oral health – related risk behaviours are interrelated. Poor association was seen between attitudes concerning oral health and oral health – related risk behaviours, indicating insufficient motivation to change lifestyle and habits. Self-reported oral hygiene habits were not strongly related to dental status.

Key words: *oral hygiene, risk behaviours, attitudes, oral health*

Introduction

Oral health-related behaviour is the broad concept implying actions people perform on regularly basis in order to prevent diseases of oral cavity and maintain good oral health. Oral diseases are clearly related to behaviour, and it is known for long time that consumption of sugary foods and beverages is major risk behaviour for the most frequent oral disease – tooth caries. Tooth cleaning habits represent positive behaviour since improvements in oral hygiene had resulted in decline in caries and periodontal disease. Two types of behaviour are regarded crucial to good oral health: self-care and use of clinical dental facilities[1–3]. However, the effect sizes of health campaigns on changing oral health-related behaviour are not great, not permanent and basically so far have been disappointing[4–6]. Therefore health educators should have modest expectations of the campaign outcome. Still, mass media and paid advertising of oral hygiene products may play the most powerful role in oral health promotion, given their access to wide ranging populations[2,7].

The basic condition for establishment and maintenance of oral health are people educated and motivated in oral hygiene. Oral hygiene habits established during childhood are a strong predictor of dental visits patterns and dental health status later in life. Positive oral health attitudes and habits in parents and emotional support to

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children are considered significant to early dental socialisation[8]. Oral health knowledge is considered to be an important postulate for health-related behaviour. It seems that people have a fair knowledge of dental diseases and the individual's own role in prevention[9]. Although most people know what constitutes appropriate daily oral hygiene practice, a gap between their knowledge and actual performance is quite common, indicating lack of motivation to change behaviour and habits[9,10]. Perceived vulnerability to disease is assumed to be a motivating factor for behaviour change. Still many people often do not draw personal implications from risk information, which has been related to unrealistic optimism resulting from social comparisons. That kind of optimism in comparative risk judgements for oral health hazards is the tendency to notice negative events as less likely, and positive events as more likely to self than to others[11–13]. It could restrain the adoption of positive preventive behaviour and violate the effectiveness of health educational efforts[12]. It seems that people still don't seriously consider tooth decay as a disease, and more then half of them delays dental visit even when they notice cavity[14]. Tooth decay and its sequels are still the main reason for tooth extraction in Croatian population above the age of 15 years[15].

The aim of this study was to explore the patterns of oral health-related risk behaviours in relation to dental status, attitudes, motivation and knowledge among Croatian adolescents.

Subjects and Methods

The study was conducted in year 2004 in the sample of 800 randomly chosen male subjects – military recruits aged 18–28 in military training camps in all four Croatian regions (Pula, Sinj, Koprivnica and Požega). The drop-out rate in the initial sample of 200 subjects in each camp was 6.3% so the analysis included 750 subjects. The initial sample size was considered adequate concerning the following parameters: around 330.000 male subjects in that age group (according to census in 2001), an expected prevalence of caries of 84%, DMFT 13.6 and variance of 81 (based on data from survey in 1986)[16], alpha type 1 error of 5% and confidence level of 95%. These camps are the only centres for obligatory basic military training and all recruits are directed in one of them. Population of recruits, although reduces investigation only to males, provides the most representative cross-section of all socioeconomic strata, lifestyles, education levels, occupational statuses and geographic areas. Military training in national military service in year 2004 was mandatory for all males in Croatia and only very small part of young adults have served in alternative civilian service. Research was approved by Ethical committee of School of Dental Medicine Zagreb University. Written informed consent was also obtained. Clinical examination was performed using the sharp dental probe, mouth mirror and dental examining light. Radiographs were not used. Mean number of decayed, missing and filled teeth (DMFT) and Significant Caries Index (SiC) were calculated. The SiC represents the mean DMFT in one third of the study group with the highest DMFT score. The examination was conducted by one clinician (SS), with a help of military personnel, as a guarantee of equal criteria, and the intraexaminer reproducibility assessed by Cohen Kappa test was 0.78.

Questionnaire

Subjects were asked to complete a questionnaire which included 23 questions in following area: (1) oral hygiene habits, (2) smoking, sweets and alcohol consumption, (3) oral health-related knowledge and motivation, and (4) demographic background.

The questions based on oral health – related motivation and knowledge consisted of: primary/more frequent purpose of dental visits – (1) »toothache« (2) »check-up«; preferable therapy when toothache occurs – (1) »tooth extraction«, (2) »conservative treatment«, who was your toothbrushing educator – (1) »parents«, (2)»dentists«, (3) »teachers«; how often did you have tooth brushing demonstrations in school – (1) »never«, (2) »once«, (3) »2–4 times«, (4) »more than 4 times«. Questions based on yes/no answers were: should the teeth be extracted as soon as possible and replaced with dentures to avoid any future problems; is tooth loosening and edentulism a normal physiological phenomenon in elderly people; should the teeth be cleaned; do you know how to clean teeth properly; did anyone demonstrate you tooth cleaning.

Smoking habits (cut off point 5 cigarettes a day) was assessed using the response categories (1) »no« and (2) »yes«. Consumption of sweets and alcohol were assessed on a 5-point scale with the end points »never« (1) and »more than once a day« (5). Frequencies of dental checkups and tooth brushing were assessed on a 4-point scale, with (1) »never«, (2) »rarely«, (3) »once a year« and (4) »twice a year or often« and (1) »never«, (2) »rarely«, (3) »once a day« and (4) »twice a day or often«, respectively. Frequencies of gingival bleeding during tooth brushing and brush replacement were assessed on a 3-point scale (1) »often«, (2) »sometimes/rarely« and (3) »never« and (1) »every up to 3 months«, (2) »every 3–6 months« and (3) »every 6+ months«, respectively. Gingivitis behaviour was coded as (1) »stop brushing teeth«, (2) »brush gently«, (3) »brush thoroughly«, (4) »visit dentist for a help«. The following oral hygiene auxiliaries were offered: (1) »none – I use only toothbrush«, (2) »tooth floss«, (3) »tooth pick« (4) »interdental brush«, (5) »mouthwash«.

For logistic regression analysis, dummy variables were constructed yielding the categories (0) »never/rarely« and (1) »frequently« with respect to gingival bleeding and (0) »rarely – over 3 months« and (1) »frequently – up to 3 months« with respect to brush replacement. Frequencies of toothbrushing, alcohol and sweets consumption were dichotomized yielding the categories (0) »less than once a day« and (1) »at least daily«. Frequencies of dental checkups were also dichotomized: (0) »less than once a year« and (1) »at least once a year«. Gingivitis behaviour was coded as (0) »improper – stop brushing/

TABLE 1
MULTIPLE LOGISTIC REGRESSION MODELS FOR ORAL HEALTH-RELATED RISK BEHAVIOURS

Dependent variable	Independent variable	Logistic coefficient	Std. Error	Sig.	Odds ratio	95% Confidence Interval
Rarely brushing (not every day)*	Rarely brush replacement	0.759	0.297	0.011	2.1	1.19–3.82
	Rarely dental visits	1.105	0.291	<0.001	3.0	1.71–5.34
	Frequent sweets consumption	–0.594	0.299	0.047	0.6	0.31–0.99
	Visit dentist – toothache	1.217	0.341	<0.001	3.4	1.73–6.59
	Educator – dentist	–0.764	0.316	0.016	0.5	0.25–0.87
Rarely brush replacement (over 3 months) &	Rarely brushing	0.800	0.284	0.005	2.2	1.28–3.88
	Not using hygiene auxiliaries	0.868	0.269	0.001	2.4	1.41–4.04
	Educator – parent	–0.336	0.171	0.049	0.7	0.51–0.99
Not using hygiene auxiliaries #	Rarely visit dentist	1.183	0.399	0.003	3.3	1.49–7.13
	Age	–0.267	0.047	<0.001	0.8	0.70–0.84
	Rarely brush replacement	0.835	0.281	0.003	2.3	1.33–3.99
	Educator – parent	0.674	0.281	0.016	2.0	1.13–3.41
Rarely visit dentist (less than annually)$	Decayed teeth	0.046	0.021	0.026	1.1	1.01–1.10
	Rarely brush replacement	0.384	0.182	0.035	1.5	1.03–2.10
	Improper gingivitis therapy	0.617	0.201	0.002	1.9	1.25–2.75
	Toothache – extraction	0.989	0.218	<0.001	2.7	1.75–4.13
	Visit dentist – toothache	1.420	0.196	<0.001	4.1	2.81–6.08
	Not using hygiene auxiliaries	1.187	0.400	0.003	3.3	1.50–7.17
Visit dentist – toothache†	Rarely visit dentist	1.312	0.194	<0.001	3.7	2.54–5.43
	Rarely brushing	1.149	0.311	<0.001	3.2	1.71– 5.81
	Decayed teeth	0.101	0.023	<0.001	1.1	1.06–1.16
	Toothache – extraction	1.166	0.255	<0.001	3.2	1.95–5.29
	Improper brushing	0.652	0.213	0.002	1.9	1.27–2.91
Toothache – Extraction ‡	Lower educational level	1.262	0.615	0.040	3.5	1.06–11.80
	Rural area	0.488	0.211	0.021	1.6	1.08–2.46
	Rarely visit dentist	0.966	0.215	<0.001	2.6	1.73–4.00
	Visit dentist – toothache	1.202	0.254	<0.001	3.3	2.03–5.45
	Edentulism normal	0.584	0.231	0.011	1.8	1.14–2.82
	For extraction of all teeth	0.942	0.297	0.002	2.6	1.43–4.59
Improper gingivitis behaviour §	Rarely visit dentist	0.702	0.220	0.001	2.0	1.31–3.10
	Missing teeth	0.139	0.068	0.050	1.2	1.01–1.31
	Educator – parents	0.470	0.186	0.011	1.6	1.11–2.30
	Improper brushing	0.606	0.281	0.031	1.8	1.06–3.18
Frequent gingival bleeding¶	Rarely brushing	1.212	0.299	<0.001	3.4	1.87–6.04

*R^2=0.208 (88.5%). &R^2=0.051 (58%). #R^2=0.209 (88.7%). $$R^2$=0.263 (73.3%). †$R^2$=0.287 (70%). ‡$R^2$=0.228 (82%). §$R^2$=0.071 (68.4%). ¶$R^2$=0.042 (91.3%) (Negelkerke pseudo R-square and overall percentage of correctly classified cases). Only significant variables are listed.

brush gently« and (1) »proper – brush thoroughly/visit dentist«.

Demographic information included place of origin: (1) »city/urban« or (2) »village/rural«; region: (1) central Croatia, (2) Slavonia, (3) Dalmatia, (4) Nord Adriatic; age at last birth; education level (1) »less than elementary school«, (2) »elementary school«, (3) »secondary school«, (4) »college/university«; employment status: (1) »farmer/fisherman/manual worker«, (2) »student«, (3) »employed/non – manual worker«, (4) »unemployed«.

Statistical analysis

Multiple logistic regression models were created to establish the relation between oral health-related risk behaviours, attitudes, oral hygiene education and demographic variables. A Wald statistics and Likelihood-ratio test with χ^2 statistics were used to test the statistical significance of each regression coefficient in the model. The Goodness-of-fit χ^2 statistics and Nagelkerke's pseudo R^2 were used to assess how well a model fits the data. Pres-

TABLE 2
MULTIPLE LOGISTIC REGRESSION MODELS FOR HEALTH-RELATED RISK HABITS AND ATTITUDES

Dependent variable	Independent variable	Logistic coefficient	Std. Error	Sig.	Odds ratio	95% Confidence Interval
Frequent sweets consumption *	Improper brushing	0.451	0.181	0.013	1.57	1.10–2.24
Frequent alcohol consumption &	Lower educational level	–0.808	0.302	0.007	0.5	0.25–0.81
	Filled teeth	–0.055	0.025	0.031	0.9	0.90–0.99
	Frequent sweets consumption	0.452	0.186	0.015	1.6	1.09–2.26
	Rarely visit dentist	0.575	0.190	0.003	1.8	1.22–2.58
	Tobacco use	1.136	0.203	<0.001	3.1	2.09–4.63
Tobacco use #	Frequent alcohol consumption	1.143	0.200	<0.001	3.1	2.12–4.64
	Lower educational level	1.390	0.285	<0.001	4.0	2.30–7.02
Improper brushing $	Visit dentist – toothache	0.794	0.192	<0.001	2.2	1.52–3.22
	Not using hygiene auxiliaries	0.929	0.411	0.024	2.5	1.13–5.66
Edentulism normal in adults†	Toothache – extraction	0.619	0.215	0.004	1.9	1.22–2.83
Extract all teeth to avoid problems‡	Toothache -extraction	1.211	0.272	<0.001	3.4	1.97–5.72

*R^2=0.011 (60%). &R^2=0.111 (78%). #R^2=0.102 (58.3%). $$R^2$=0.054 (79.2%). †$R^2$=0.016 (64.4%). ‡$R^2$=0.053 (91.2%). (Nagelkerke pseudo R-square and percentage of correctly classified cases). Only significant variables are listed.

ence of a particular risk behaviour was used as dependent dichotomized variable (0=absent/rarely present, 1=frequently present). Age, number of decayed, missing and filled teeth was included in the analyses as covariates. The odds ratios (OR) with 95% confidence intervals (CI) were used as a measure of the strength of the association between the presence of a factor and the occurrence of an event. All analyses were performed using statistical software (SPSS Release 10.0; SPSS Inc. Chicago, Illinois, USA). An alpha level of 5% was considered statistically significant.

Results

Assessment of oral health-related behaviours showed that 58% of Croatian young men brushed their teeth twice a day or often, and 30% only once a day. Only 10% used hygiene auxiliaries and less then half went to dental check-ups on regular basis. Over 60% of subjects did not consume sweets on a daily basis, almost half of them smoked less than five cigarettes a day and 8% drank alcohol every day. More of 80% of them think oral hygiene is necessary and believe they practice it properly. Over 80% would seek conservative treatment instead of extraction when toothache occurs and the toothache is the main reason for dental visits (53%) instead of check-ups. Only 20% of population did not need any dental treatment, 3.6% was caries free and 51% had all their teeth. The mean DMFT index was 8.6±5.1 (95% CI 8.3–9.0) with DT=3.4±4.2 (95% CI 3.1–3.7), MT=1.0±1.4 (95% CI 0.9–1.1) and FT component=4.2±4.0 (95% CI 3.9–4.5). Significant Caries Index (SiC) was 14.4±3.5 (95% CI 14.0–14.9), highlighting population with high caries experience.

For oral health – related risk behaviours, attitudes and education several multiple logistic regression models were created (Tables 1–3). Although models were statistically significant and correctly classified up to 91% of subjects their explanatory values were quite low – less than 26%. Five of them – rarely tooth brushing, not using hygiene auxiliaries, rarely visiting dentist, toothache as a primary reason to visit dentist, and demand for tooth extraction due to toothache – had the highest explanatory values ranging from 21–29% and correctly classified 73–89% of subjects. All Odds ratios with 95% confidence interval limits, coefficient of determinations and explanatory values of models are listed in Tables 1–4.

Very low explanatory values of less than 7% have three logistic models – rarely brush replacement, improper gingivitis behaviour and frequent gingival bleeding (Table 1). Models concerning sweets, alcohol and tobacco consumption also had low explanatory values ranging from 1 to 11% (Table 2). Frequent consumption of sweets was only associated with improper brushing. Oral health – related attitudes had also low explanatory values ranging from 5 to 16% (Table 2). For education in oral hygiene five models were established, all showing low explanatory values in range from 7 to 12% (Table 3).

Three cut-off points were chosen for operational definitions of bad dental status: DMFT≥14 (according to SiC), DMFT≥1 and DT≥1. Toothache as a primary reason to visit dentist, extraction as preferable therapy when toothache occurs, not having brushing education in school and frequent gingival bleeding were significantly related to population with high caries experience (DMFT=14 according to SiC) producing Odds ratios of 1.6 (95% CI 1.07–2.46), 2.1 (95% CI 1.29–3.25), 1.8 (95%

TABLE 3
MULTIPLE LOGISTIC REGRESSION MODELS FOR EDUCATION IN ORAL HYGIENE

Dependent variable	Independent variable	Logistic coefficient	Std. Error	Sig.	Odds ratio	95% Confidence Interval
Never educated in oral hygiene*	Decayed teeth	0.057	0.020	0.005	1.1	1.02–1.10
	Rural area	0.462	0.191	0.016	1.6	1.09–2.31
	Not using hygiene auxiliaries	1.369	0.485	0.005	3.9	1.52–10.17
	Frequent gingival bleeding	0.572	0.290	0.048	1.8	1.01–3.13
	Improper brushing	1.080	0.202	<0.001	3.0	1.98–4.37
Never brushing educated in school&	Age	–0.093	0.039	0.018	0.9	0.84–0.98
	Educator – parent	0.868	0.196	<0.001	2.4	1.62–3.50
Educator – parents #	Never brushing education in school	0.874	0.202	<0.001	2.4	1.61–3.56
	Not using hygiene auxiliaries	0.693	0.274	0.011	2.0	1.17–3.42
	Improper gingivitis behaviour	0.451	0.187	0.016	1.6	1.09–2.27
Educator – dentists $	Hygiene auxiliaries usage	0.785	0.263	0.003	2.2	1.31–3.67
	Filled teeth	0.044	0.021	0.038	1.1	1.01–1.10
	Daily brushing	0.743	0.306	0.015	2.1	1.15–3.83
	Urban area	0.532	0.198	0.007	1.7	1.15–2.51
Educator – teachers †	Frequent gingival bleeding	0.733	0.339	0.031	2.1	1.07–4.04

*R^2=0.121 (79.2%). &R^2=0.070 (72.4%). #R^2=0.081 (58.3%). $$R^2$=0.073 (62.6%). †$R^2$=0.011 (77.9%). (Nagelkerke pseudo R-square and percentage of correctly classified cases). Only significant variables are listed.

CI 1.21–2.74) and 2.4 (95% CI 1.21–2.74) respectively. Lower level of education and not having dentist as hygiene educator were significantly associated with DT≥1. Both logistic regression models showed very low explanatory values (less than 7%), and DMFT≥1 model was not statistically significant (Table 4).

Discussion

Oral diseases are major public health problem in terms of widespread prevalence, considerable impact on daily living and high costs for both individuals and community. Yet, they have preventable risk factors that are related to lifestyles and behaviours. The global trend of decline of tooth caries is a result of a number of individual, professional and community preventive measures, associated with changing patterns of oral health – related risk behaviours. Still caries is not eradicated, but only controlled to a certain degree[17]. The goal of this study was to investigate models of oral health-related risk behaviours in relation to dental status, attitudes, motivation and knowledge among Croatian adolescents. Continuous surveillance of patterns of risk behaviours is of fundamental importance to planning and evaluating community based preventive activities.

Croatian male adolescents in year 2004 had similar oral health – related risk behaviours as their pairs around the world. Majority of adolescents and adults brushed their teeth at least once a day but rarely used hygiene auxiliaries[1,2,10,13,14,18,19]. It is advisable to brush teeth twice a day, but not using hygiene auxiliaries is considered risk behaviours since proximal surfaces of teeth can not be sufficiently cleaned without using dental floss, interdental brush or special toothpicks[19,20]. Visiting dentist once a year was common practice in half of adolescents and it was often associated with tooth brushing more than once a day[2]. But the present study confirmed previously identified prevalent behaviour – visiting a dentist only when symptom occurs[2,13,18]. Potential reasons may include negligence on behalf of the subjects and absence of dental public health programs[18]. Also not seldom behaviour was seeking tooth extraction because of pain or discomfort instead of conservative treatment. It seems that loosing teeth is still seen by many people as a natural consequence of ageing. Both attitudes could diminish a positive trend of reduction of tooth loss and edentulousness in middle aged and elderly population[17].

Habits concerning sweets, alcohol and tobacco consumption in Croatian adolescents could be considered satisfactory. Majority did not consume sweets on a daily basis, and minority consumed alcohol every day, but half of population smoked. Limiting the consumption of sugary food and drinks is also important in reduction of tooth caries, although there are almost no caries risk-free foods and beverages[21]. Oral health – related behaviour seems to be related to intercultural differences and belief systems. Limited intake of sugary food is more often related to body image and perceived overweight than to decay[22].

This study identified some behavioural interrelationships and patterns that must be targeted in promotion of oral health throughout life in order to reduce the morbidity rate. According to our study, models of risk behaviours were statistically significant but their explanatory

TABLE 4
MULTIPLE LOGISTIC REGRESSION MODELS FOR OPERATIONAL DEFINITIONS OF BAD DENTAL STATUS

Dependent variable	Independent variable	Logistic coefficient	Std. Error	Sig.	Odds ratio	95% Confidence Interval
DMFT≥14* (SiC)	No brushing education in school	0.598	0.209	0.004	1.8	1.21–2.74
	Frequent gingival bleeding	0.892	0.448	0.046	2.4	1.02–5.87
	Visit dentist – toothache	0.482	0.213	0.024	1.6	1.07–2.46
	Toothache – extraction	0.717	0.236	0.002	2.1	1.29–3.25
DT≥1#	Lower education	0.607	0.268	0.023	1.8	1.09–3.10
	Educator – dentist	–0.434	0.178	0.015	0.7	0.46–0.92

*R^2=0.065 (82.9%). #R^2=0.029 (66.2%). (Negelkerke pseudo R-square and overall percentage of correctly classified cases). Only significant variables are listed.

values were quite low, less than 30%. The highest explanatory values were recorded in – rarely tooth brushing, not using hygiene auxiliaries, rarely visiting dentist, toothache as a primary reason to visit dentist, and demand for tooth extraction due to toothache. Risk behaviours were better related between them selves than to attitudes and dental status, indicating insufficient motivation to change lifestyle and habits. It must be kept in mind that all behaviours were self-reported and might be considered a source of potential bias.

DMFT measures the lifetime experience of tooth caries in permanent dentition. Still we could not establish high explanatory value model for risk behaviours associated with caries experience. Our caries models explained less than 10% of variability in population. Population with high caries experience, based on SiC, visited dentist primary due to toothache, preferred extraction when toothache occurs, did not have brushing education in school and had frequent gingival bleeding.

In comparison to previous survey conducted in Croatia in 1986 improvement in oral health is evident[16], and it was confirmed by our previous survey[23]. It could be an effect of large preventive program measures conducted on schoolchildren in Croatian in the 1980-ties. Unfortunately, preventive program was terminated in the beginning of 1990-ties, when the war in Croatia started.

Perception of oral health in Croatian male adolescents is at a higher level because great majority of them think oral hygiene is necessary and believe they practice it properly. Motivation to keep the natural teeth is also at a higher level but although over 80% would seek conservative treatment instead of extraction when toothache occurs; still the toothache is the main reason for dental visits instead of check-ups. People tend to underestimate their dental and periodontal treatment needs which often may influence an oral health care seeking behaviour[24]. It seems that utilization of dental facilities is motivated foremost by self-perception of illness[25].

Only half of this young population had all their teeth, one-fifth did not need any dental treatment and minority was free of tooth decay. Knowledge, habits and motivation significantly correlate with clinical status of oral health, but their explanatory values are quite low. All those data imply that perception of oral diseases is at a low level and that majority of Croatian adolescents are not aware of their oral health – related risk behaviours. It is in concordance with our previously published study conducted on 17–19 year-olds of both genders[13].

Treatment of oral diseases is costly and often not feasible for many publicly subsidized health systems. Therefore understanding behavioural pattern is crucial in creating public health programs to change lifestyles and improve oral health. Public health policies should include a number of cost-effective interventions addressed to counter risk behaviours such as visiting dentist only when toothache occurs, not visiting dentist on annual basis, not brushing teeth every day, not flossing, stop brushing teeth or brushing gentler when having gingival bleeding etc. Those interventions must comprise increase of public and individual awareness and understanding of risks for oral health: education of teachers and parents, preventive programmes in schools, collaboration with manufacturers in producing high quality yet educative commercials for toothbrushes, toothpastes, dental floss, mouthwashes etc. Paid advertising should include some information concerning gingivitis, interproximal cleaning, diet and oral hygiene. Dentist and teachers should play more important role in promoting healthy lifestyles. The dental team is obligated to recognize and understand the gap between the patients' knowledge and actual performance concerning preventive measures. The greatest motivating factor in changing oral health-related behaviours is to improve perception of personal risks. People should be aware of the consequences of their risk behaviours and accept responsibility for their own health. Therefore emphasis must be given on improving perception of personal risks. It is of great importance to start continuous community oral health programme for children during mandatory education which would incorporate education on tooth caries and demonstration of toothbrushing to juniors and education of periodontal disease and demonstration of flossing in upper grades. Dentists in primary health care facilities must be financially stimulated to call their patients on check-ups on annual basis. Obligatory annual check-up must be accompanied with legislation, public financing and mass media campaign.

Conclusion

Oral health – related risk behaviours were interrelated. Poor association was seen between attitudes concerning oral health and oral health – related risk behaviours, indicating insufficient motivation to change lifestyle and habits. Self-reported oral hygiene habits were not strongly related to dental status.

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ORALNOZDRAVSTVENA RIZIČNA PONAŠANJA I STAVOVI HRVATSKIH ADOLESCENATA – MULTIPLA LOGISTIČKA REGRESIJSKA ANALIZA

SAŽETAK

Cilj studije bio je istražiti obrasce oralnozdravstvenih rizičnih ponašanja hrvatskih adolescenata u odnosu na njihov status zubi, stavove, motivaciju i znanje. Ispitivanje je provedeno na uzorku od 750 muških ispitanika – ročnih vojnika dobi 18–28 godina u Hrvatskoj pomoću upitnika i kliničkog pregleda. Izračunati su prosječan broj karioznih, izvađenih i ispunjenih zubi (KEP) i Indeks značajnog karijesa (SiC). U statističkoj analizi rabljeni su modeli multiple logističke regresije. Iako su modeli rizičnih ponašanja bili statistički značajni, njihove eksplanatorne vrijednosti su bile vrlo niske. Pet modela – rijetko četkanje zubi, nekorištenje pomoćnih oralnohigijenskih sredstava, rijetko posjećivanje stomatologa, zubobolja kao glavni razlog posjete stomatologa i preferiranje vađenja zuba kod zubobolje – imalo je najviše eksplanatorne vrijednosti u rasponu od 21–29% i točno su klasificirali 73–89% ispitanika. Zubobolja kao glavno razlog posjeta stomatologu, preferiranje ekstrakcije kod zubobolje, izostanak edukacije o oralnoj higijeni u školi te učestalo gingivalno krvarenje bili su značajno povezani s populacijom s visokim intenzitetom karijesa (KEP≥14 shodno SiC indeksu) stvarajući omjere izgleda od 1,6 (95% CI 1,07–2,46), 2,1 (95% CI 1,29–3,25), 1,8 (95% CI 1,21–2,74) i 2,4 (95% CI 1,21–2,74). Model KEP≥14 imao je nisku eksplanatornu vrijednost od 6,5% i ispravno je klasificirao 83% ispitanika. Može se zaključiti da su oralnozdravstvena rizična ponašanja međusobno povezana. Loša povezanost između stavova o oralnom zdravlju i rizičnih ponašanja upućuju na nedovoljnu motivaciju adolescenata da promijene životne navike. Samoprijavljene oralnohigijenske navike nisu bile jako povezane sa statusom zubi.