

## SMOKING HABITS OF NIS PRESCHOOL CHILDREN'S PARENTS

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The greatest threat for the public health in Serbia is definitively smoking. 1,3 billion of people in the world are smokers and 4,9 million of death at the global level are direct consequences of smoking. If this smoking rhythm continues until 2020. the number of deaths caused by smoking will have been doubled. There are 4000 identified substances in the tobacco smoke, 50 of which have been proven to be carcinogenic. Nowadays, 14000 to 15000 young people in the developed countries and 68000-84000 in the underdeveloped countries begin to smoke. 700 millions of children, the half of the whole children population, are exposed to the passive smoking.

The prevalence of smoking in Serbia, although reduced by 6,9% compared to 2000, is still very high and makes 33,6% of the whole population (38,1% of men and 29,9% of women).

The aim of the study was to investigate the smoking habits of preschool children's parents, motivated by the fact that the children of that age are highly sensitive and susceptible to the toxic influence of tobacco smoke, but also to check the necessity for an aggressive public health programme implementation in the aimed populations.

This research, as a cross-sectional study, is carried out among preschool children's parents, children being 4 to 6 years old that attend nursery schools in Nis.

The prevalence of smoking in preschool children's parents is extremely high, and makes 46% (45,1% of men and 46,9% of women). Having taken into consideration the parental role in upbringing and education of children, as well as the influence of passive smoking, the main conclusion is that the children's health is seriously endangered. Education, making new and maintaining already existing programmes and legal obligations considering smoking are significant steps for reducing smoking and promoting health. *Acta Medica Medianae 2007;46(3):11-15.*

**Key words:** smoking habits, passive smoking, preschool children

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### Background

Smoking is a major public health threat in general, and has been characterized as the cause of the largest number of preventable deaths worldwide (1). 1,3 billion of people in the world are smokers and 4,9 million of death on a global level are direct consequence of smoking. If this smoking rhythm continues until 2020, the number of deaths caused by smoking will have been doubled. There are 4000 identified sub-stances in the tobacco smoke, where 50 of them are proven to be carcinogenic. Nowadays, 14000 to 15000 of young people in the developed countries and 68000-84000 in the underdeveloped countries

begin to smoke (2). Serbia is among countries that face a serious smoking problem. The research from 2006. showed that 33,6% of the adult population were current smokers, 38,1% of men and 29,9% of women. 61,7% of population is exposed to tobacco smoke in their own homes and 49% of them at their work (3). 54,7% of young people 13 to 15 years old have already tried to smoke, and more of the half of them had their first cigarette before the age of 10. 16,8 % of girls and 15,5% of boys are current smokers. 97,4% of adolescents are exposed to passive smoking on a daily basis. Although the number of smokers in Serbia is lower than before, the consumption of cigarettes is still very high, due to the large amount of so-called heavy smokers, whose average number of cigarettes per day is more than 40 (4).

Parents can affect the health and lifestyle of their children through role modeling, either positively or negatively, by influencing their attitudes towards health and substance abuse. Exposure to their parents' smoking habits may lead adolescents to develop the perception that smoking

is a normative adult behavior (5). It has been found that paternal and maternal smoking statuses are strong predictors not only of child smoking onset, but as well as transition from initiation to monthly and after that daily cigarette use (6,7).

Parents that smoke not only act as negative role models for their children but also, unless precautions are taken, expose them to environmental tobacco smoke (ETS). Children, due to higher ventilation rates, inhale elevated levels of ETS for the same level of exposure and due to smaller body mass are affected more seriously than adults. Exposure to ETS affects children's health in many ways, by predisposing them to cancer (8,9). Cardiovascular diseases (10,11) asthma and lower respiratory tract infections (12,13), neurological disorders (14,15) have even been found to affect child cognitive abilities (16,17).

Since Serbia has a high percentage of current smokers, children's familiarity to cigarettes due to parental smoking as well as ETS exposure in the household, could affect both their child's perception of smoking and their exposure to ETS. Since young children often imitate their parent's habits, the purpose of this study was to assess the smoking habits of parents with young preschool children and to investigate into the necessity of conducting a public health awareness programme aimed at the general adult population in Nis.

## Methods

This research, as a cross-sectional study, was carried out among preschool children's parents, 4 to 6 years old, enrolled in kindergardens in Nis. With the permission of the management of kindergardens in Nis, the questionnaire was completed during 2007 in all 17 kindergardens in Nis. There were given 1500 questionnaires, and 1242 were returned with the answers, or 82,8%. This questionnaire was made following the examples of the WHO (World Health Organization. *Guidelines for controlling and monitoring the tobacco epidemic*. World Health Organization, 1998.) and European Health Risk Monitoring (EHRM).

## Statistical analysis

Descriptive measurements were used to define the characteristics of parents who participated in the study. Chisquare test  $\chi^2$ , was used to calculate the distribution of the parents population regarding parameters such as level of education, employment and smoking prevalence. The student's t-test was used to check for differences between the age of the parents, their salaries, the years they smoked, and the number of cigarettes consumed per day, as well as the beginning of smoking. Logistic regression was

used to determinate the connection of smoking and education, marriage status, salaries and employments. The statistical analysis was accomplished using SPSS 15.0.

## Results

From 1242 parents that took part in the research, there were 552 men and 690 women. The average age of men was  $36,45 \pm 5,39$ , and was statistically significant compared to the average women's age  $32,97 \pm 4,65$ , ( $t=12,01$  and  $p<0,001$ ). There is also a big difference in the men's employment compared to the women's ( $\chi^2=41,30$  and  $p<0,001$ ). The level of education did not show statistical significance, and fathers had higher salaries than mothers. ( $t=5,45$  and  $p<0,001$ ).

Smoking prevalence among parents of preschool children in Nis was estimated at 46,00%, including periodical smokers. 45,1% of men and 46,9% of women were found to be current and periodical smokers. Only 36,4% of households had non-smoking parents, while 34,0% and 29,6% had one or both parents smoking, respectively. The average number of smoking years were found to be statistically significant according to the genders,  $16,41 \pm 9,06$  for males, and  $12,13 \pm 5,98$  for females ( $t=7,60$  and  $p<0,001$ ), although one must take into account the mean difference in age between the two sexes, that is statistically significant. Males were also found to be heavier smokers on a daily basis  $21,83 \pm 7,83$ , compared to women with  $16,47 \pm 7,01$  cigarettes per day ( $t=7,54$  and  $p<0,001$ ). From 690 women in the study, 180 or 28,2% of them said that were smoking during the pregnancy. Men begin to smoke at 17,43 years old, which is statistically significant related to women that begin to smoke later, at the age 18.43 ( $t=4,37$  and  $p<0,001$ ). The greatest part of the parents were aware of the harmful effect of the passive smoking, 90,7% of women and 85,3% of men.

Logistic regression was used to determine that smoking is related to parental education (OR=0,65; 95%CI, 0,481-0,870;  $p<0,001$ ) and salaries (OR=0,977; 95%CI, 0,967-0,987;  $p<0,001$ ), while marriage status and employment did not show significant influence.

The parameters that were significantly related to smoking were taken for the multivariant model, where education was marked as the parameter that was statistically significant (OR=0,65; 95%CI, 0,481-0,870;  $p<0,001$ ).

Table 1. Characteristic of preschool children's parents

	Father	Mother
<b>N</b>	552	690
<b>Age (years) ±SD</b>	36,45±5,39	32,97±4,65
<b>Salary(dinars)</b>	24747,37±13885.09	20231,68±11998,08
<b>Education %(N)</b>		
No school	0%(0)	0,4%(3)
Primary	1,1%(6)	1,3%(9)
Secondary	61,4%(339)	53,9% (372)
College	14,7%(81)	18,7% (129)
High	22,8%(126)	25,7% (177)
<b>Employment %(N)</b>		
Unemployed	9,2% (51)	19,7% (135)
Employed	88,0% (486)	73,4% (504)
Conditionally employed	2,7% (15)	7,0% (48)

Table 2. Smoking habits of Nis preschool children's parents

	Father	Mother	p	
<b>Prevalence of smokers %(N)</b>				
No smoker	54,9% (303)	53,0% (360)	p>0,05	
Smoker	41,3% (228)	42,6% (288)		
Occasional smoker	3,8% (21)	4,3% (30)		
<b>Smoking length (years)</b>	16,41±9,06	12,13±5,98	P<0,001	
<b>Number of cigarettes per day</b>				
Smoker	21,83±7,83	16,47±7,01	P<0,001	
Occasional smoker	5±3,56	3,13±1,89	p>0,05	
<b>Smoking startup (age in years)</b>	17,43±3.40	18,43±3,10	P<0,05	
<b>Parents' smoking %(N)</b>				
Both smokers	29,6% (357)			
One smoker	34,0% (408)			
Both non-smokers	36,4% (438)			
<b>Attitude of harmful effect of passive smoking to the children %(N)</b>				
Do not think it is harmful	0% (0)	0,5% (3)	P<0,05	
Just a little bit	1,2% (6)	3,2% (21)		
Agree but do not think about it	13,5% (69)	5,6% (36)		
Absolutely aware that smoking is harmful	85,3%(435)	90,7% (588)		
<b>Smoking in pregnancy</b>	/	Yes	No	
		28,2(180)	71,8(459)	

Table 3. Univariate and multivariate Logistic Regression

	Univariate OR	95%C.I. for OR	Significant p	multivariate regression OR	95%C.I. for OR	Significant P
Education	0,630	0,550-0,723	<0,001	0,647	0,545	<0,001
Salary	0,977	0,967-0,987	<0,001	0,990	0,979-1,001	0,064
Marriage status	1,204	0,905-1,603	0,203	/	/	/
Employment	0,785	0,605-1,020	0,07	/	/	/

## Discussion

An alarming aspect of our research is that the prevalence of smoking of Nis preschool children's parents is estimated at 46,00%, and is extremely higher than the smoking prevalence in Serbia which is 33,6%. Smoking prevalence among men which is 45,1% is lower compared to the smoking prevalence among women 46,9%. This relation differs from the global Serbian level where higher percentage of men are found to be current smokers: 38,1%, compared to 29,9% of women. Considering the fact that there is a large number of women that smoke, that many of them are unemployed and therefore spend a lot of time with their children, one can deduce that children are heavily exposed to ETS in their homes.

Only 36,4% of households from the sample have non-smoking parents. Considering that the rest of households, or 63,6% of them, have one or both parents smokers, respectively, the conclusion is that a great percentage of children are exposed to ETS and the familiarity of cigarettes at home. The real percentage of households with current smokers could be even higher due to the fact that there are many potential smokers, members of the extended family who live or spend time in the same households.

It has been stated that there is a dose-response relationship between parental and adolescent smoking with the risk of a child smoking found to increase relatively to the number of parents that smoke. Young children are influenced by and learn from their parents' and siblings' behavior, meaning that parents that smoke not only provide easy access to cigarettes, but also act as a primary role model for the

initiation to smoking. This newly learned behavior might not even arise until a long time later, during adolescence, where children may be posed to mimic their parents' smoking behavior in order for them to feel more like adults (18). On the other hand, if parents quit smoking, it has been found to reduce the likelihood of their children becoming smokers. In Serbia, negative parental role modeling may work in synergy with other factors that effect adolescent smoking, such as pressure at school, low standard, massive advertising, etc.

Taking into account the huge costs of smoking associated with personal health and the demands on health services, one can understand the economic and social burden carried by the whole population.

There is a positive fact that the great deal of parents are fully aware of the harmful effects of smoking, 85,3% of men and 90,7% of women, what is almost 10% more than in 2000.

The necessity of the educational programmes is proven by the fact that higher educated people smoke less (OR=0,65; 95%CI, 0,481-0,870;  $p < 0,001$ ).

## Conclusion

Substantial percent of preschool children in Nis grow up in an environment that is oriented towards tobacco smoke. Conducting already existing, making new, and even more aggressive parental health promotion programme would be a positive step towards inducing parental smoking cessation, increasing their awareness about harmful effects of tobacco smoke, promotion of health and reducing risks of health threats for the most vulnerable population, children.

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## NAVIKE RODITELJA PUŠAČA PREDŠKOLSKE DECE

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Najveća pretnja po javno zdravlje Srbije je svakako pušenje. U svetu puši 1,3 milijarde ljudi i 4,9 miliona smrti u svetu nastane kao posledica pušenja. Ako bi se tempo epidemije pušenja nastavio, do 2020. godine, broj umrlih od posledica pušenja bi se udvostručio. U duvanskom dimu se nalazi 4000 identifikovanih materija od kojih je za 50 dokazano da su kancerogene. Trenutno 14000-15000 mladih u visokorazvijenim zemljama i 68000-84000 u srednje i nisko razvijenim zemljama, svakodnevno postaju pušači. Pasivnom pušenju izloženo je 700 miliona dece ili polovina sve dece sveta.

Prevalenca pušenja u Srbiji, iako smanjena za 6,9% u odnosu na 2000. godinu je i dalje visoka i iznosi 33,6% (38,1% muškarci i 29,9% žena).

Svrha ove studije je da se istraže pušačke navike roditelja predškolske dece, iz razloga što su deca u tom uzrastu vrlo osetljiva i podložna negativnum uticaju duvanskog dima, kao i da se ispita neophodnost agresivnijeg sprovođenja javnog zdravstvenog programa ka ciljnim populacijama.

Istraživanje, kao studija preseka, sprovedeno je među roditeljima dece predškolskog uzrasta, starosti od 4 do 6 godina, koja pohađaju niška obdaništa.

Prevalenca pušenja kod roditelja predškolske dece je alarmantno visoka i iznosi 46,0% (45,1% muškarci i 46,9% žena). Uzevši u obzir primarnu ulogu roditelja u vaspitanju i odgoju kao i uticaj njihovog pušenja na zdravlje dece, zaključuje se da je zdravlje dece ugroženo. Obrazovanje, formiranje novih i poštovanje već postojećih programa i zakonskih regulativa o pušenju je od ključnog značaja za smanjenje epidemije pušenja i promocije zdravlja. *Acta Medica Medianae* 2007;46(3):11-15.

**Ključne reči:** pušačke navike, pasivno pušenje, deca predškolskog uzrasta