

Smoking and Pregnancy: Prevalence, Knowledge, Anthropometry, Risk Communication

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Abstract: Information about smoking impact on pregnancy as well as clear advice to stop and a treatment offer should be included into the health care of pregnant women. We contacted them within the first 3 days after delivery. In the sample of 265 women 23.8% (63/265) smoked during their pregnancy (51.9% with basic education only, 25.8% with high school and 5.0 % with university education), and 7% of the sample (19/265) did not quit by the delivery. Only 68% of smokers (43/63) were asked about their smoking habits during the pregnancy by their gynaecologist, and both smokers and non-smokers had insufficient information about the impact of smoking on their baby (40% of smokers and 32% of non-smokers had no idea at all), the doctor was the source of this kind of information only in 5% (13/265) cases. Smokers' children had a lower average birth weight (3.084 g in smokers vs. 3.325 g in non-smokers, $p=0.02$) and were smaller (49.3 cm vs. 50.5 cm respectively, $p=0.02$). Smokers' bodyweight increased more than non-smokers' during their pregnancy (gaining 14.8 kg vs. 12.9 kg respectively, $p=0.02$), they also underwent the delivery at a lower age (27.6 vs. 30.0 years respectively, $p<0.01$) and after a non-significantly shorter duration of pregnancy (38.7 weeks vs. 39.0 weeks respectively, $p=0.53$). If 23.8% of pregnant women smoke and 90.6% of them would like to stop, it is a missed opportunity for education and treatment of tobacco dependence by their physicians.

Key words: Smoking – Prevalence – Pregnancy – Weight – Height – Knowledge – Risk communication

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Introduction

Smoking, both active and passive, influences reproductive health in many aspects, as shown e.g. in the recent summary of those effects “Smoking and Reproductive Life” with 198 references, edited in 2004 by the British Medical Association [1]. Since this summary is very comprehensive, we consider it not necessary to mention individual publications. As shown in this summary, smoking during pregnancy means a lower birth-weight, reduced foetal growth, higher risk of perinatal death, placental complications (placental abruption, placenta praevia), premature birth, foetal malformation (orofacial clefts, limb reduction or urogenital abnormalities) and other negative effects. With the exception of never starting smoking, the recommendation for young women remains to stop ideally a year before getting pregnant, and certainly during pregnancy or breastfeeding [1]. The reality seems to be different.

Even in countries like Canada [2] or the United Kingdom [3] the situation is similar to the Czech Republic. Gynaecologists and their staff have the unique opportunity, and also the duty to ask their patients about smoking and to inform them about the impact of smoking on the baby including the strong recommendation to stop and offering appropriate effective treatment to those willing to stop [4, 5, 6]. Since nicotine dependence is a typical stimulant drug dependence, to quit may not be easy and needs intensive support [7]. In the general population, about 25% of Czech adult women are smokers, according to different surveys, e.g. www.uzis.cz.

Materials and methods

Within the first 3 days after delivery, 265 women were contacted at the clinic (Department of Gynaecology and Obstetrics, Prague, within a week after delivery, during 2003–2004). Those women were in the care of different gynaecologists across the city during their pregnancy. All contacted women answered the questions about their smoking, social status, education, knowledge about smoking impact on their pregnancy, and sources of their information (structured interview). Basic anthropometric data from them and their children were collected (weight and height), after delivery at the clinic. Smoking status was validated by CO in expired air (Bedfont Micro Smokerlyzer, CO in ppm, below 10 ppm considered as non-smoking value). For the statistical analysis we used EPIINFO and STATISTIKA 6 software named p-values in t-test for independent samples.

Definition of a smoker: As smokers were considered all women who had smoked (including occasionally) at the time when they got to know they are pregnant and several weeks after, i.e. in the first two trimesters. Non-smoker: never smoked 100 or more cigarettes in her life. Former smokers including those who stopped smoking at least one year ago were included in the non-smokers group. The uncertain time of quitting was the reason why we evaluated the whole group of women smoking during their pregnancy as smokers and did not use any

dependence score. Since women were contacted at the time of delivery, the information about the number of daily smoked cigarettes was anamnestic only and this is why we did not evaluate the data in more details. Ethical committee was not consulted because the usual treatment frame was not exceeded.

Results

The prevalence of smoking (first and second trimester) 23.8 % was very high. Even if some of those women (16.8% of the sample) stopped during the pregnancy, 7% of the sample admitted smoking up to the delivery. We did find differences in the smoking and non-smoking group which would be even more significant after stratification according to time of quitting or the number of the daily smoked cigarettes. Not surprisingly, most smokers (51.9%) were found in the lowest education group compared to 5% smokers among the university educated women – Table 1. Concerning stress situations, smokers are more often unsatisfied with their living conditions (according to answer yes/no to this question) compared to non-smokers (34.9% vs. 12.9% respectively), and less often use a car (77.8% vs. 90.1%), Table 2.

The seriousness of the illness F 17, tobacco dependence, according to the Statistical Classification of Diseases and Related Health Problems, ICD-10, WHO, can be demonstrated on the fact that 90.6% of smokers would like to stop, 66.7% tried at least once, and 6.9% tried with pharmacological support – Table 2.

During their pregnancy only 68.3% of smokers were asked about their smoking habit by their gynaecologist and 17.8% of smokers got from him/her the recommendation to REDUCE (!) their smoking, 8.9% did not get any advice (!).

Table 1 – Smoking, education and age

Education level	N	% of smokers	mean age (years)	SEM
Basic school	27	51.9	27.5	1.09
High school	178	25.8	29.0	0.34
University	60	5.0	31.3	0.62

Table 2 – Smoking, wish to stop, pharmacological treatment, and living conditions

	Smokers		non smokers		total	
	n	%	n	%	n	%
Wish to stop	53	90.6	–	–	–	–
Tried to stop	57	66.7	–	–	–	–
Tried to stop with pharmacotherapy	58	6.9	–	–	–	–
Unsatisfied with flat	63	34.9	202	12.9	265	18.1
No personal car	63	22.2	202	9.9	265	12.8

Knowledge about the health impact of smoking on pregnancy was poor – Table 3. Surprising is the absence of knowledge about the possible foetal retardation of the growth and development in smokers, or absence of any knowledge in about one third of the sample.

In Table 5 we can see the typical difference in the birth weight – about 250 g. Also, smokers were younger (27.6 vs. 30.0 years at the time of the delivery), had a non-significantly shorter pregnancy (38.7 vs. 39.0 weeks, $p=0.53$) and gained more weight with the statistically significant difference in the group of BMI (body mass index, kg/m^2) between 20–25.9 – see Table 4 of Fig. 1.

Unfortunately, the gynaecologist (or his/her staff) was the source of information about the impact of smoking on the pregnancy only in 5% of cases, most often women getting information from books and magazines (23%), other media (14%) and their larger family and friends (23%) – see Table 6. Information sources did not differ in smokers and non-smokers.

Table 3 – Knowledge about health impact of smoking on foetus

	smokers		non-smokers	
	n	%	n	%
Low birth weight	63	47.6	202	51.0
Growth and development retardation	63	0.0	202	9.4
Respiratory problems	63	22.2	202	22.3
Don't know any impact	63	39.7	202	32.2

Table 4 – Gaining weight during pregnancy (in kg)

BMI	n	smokers		non-smokers			total		
		mean	SEM	n	mean	SEM	n	mean	SEM
<18.5	5	14.2	2.71	12	13.7	1.60	17	13.9	1.34
18.5–19.9	11	15.3	2.15	39	13.3	0.77	50	13.8	0.76
20–25.9	33	15.4	1.21	129	13.0	0.45	162	13.5	0.44
>25.9	14	13.2	2.24	20	11.6	0.83	34	12.3	1.03
Total	63	14.8	0.90	201	12.9	0.35	264	13.4	0.35

BMI – Body mass index; SEM – Standard error mean

Table 5 – Pregnancy and its outcome

	n	smokers		non-smokers		p	
		n	SEM	n	SEM		
Newborn weight (g)	63	3084.2	109.6	202	3324.7	48.5	0.02
Newborn length (cm)	48	49.3	0.53	117	50.5	0.23	0.02
Age of mother at delivery (years)	63	27.6	0.55	202	30.3	0.34	<0.01
Weight gain during pregnancy (kg)	63	14.8	0.90	201	12.9	0.35	0.02
Weeks of pregnancy	51	38.6	0.53	123	39.0	0.26	0.53

Discussion

As mentioned above, the health impact on pregnancy is a complex one [1]. Despite this fact, smoking among Czech pregnant women is similar to those in Canada: here 18% of pregnant women are smokers during the first trimester, 10% during the second and 10% in the third trimester, as well as 8% of smokers immediately postpartum [2]. In the UK the numbers of smokers during pregnancy in 2002 were as follows: in England 19%, in Scotland 25%, and in Northern Ireland 22% [3]. In the general population of the Czech Republic over 15 years of age about 25% women are smokers [8].

Interesting is that smokers gained more weight than non-smokers – this can be explained by the fact that some of them stopped smoking during pregnancy including the impact on gaining weight, see Table 4, Figure 1.

Even if we considered all women who smoked during their pregnancy as smokers, we found significant differences. Those differences would be probably more significant if we could divide the sample according to the number of daily smoked cigarettes. This was not done because of contacting our smokers at the time of delivery only, so we could not validate the numbers they gave us.

The seriousness of nicotine dependence can be illustrated by the fact that almost all smokers wish to stop, but are not able to succeed.

More alarming is the fact that they were not offered the appropriate treatment or even information from their gynaecologist during regular control visits. No woman from our cohort visited a smoking cessation clinic (over 50 of them are available in the country, list at www.dokurte.cz). The alarming absence of knowledge as well as dependence of smoking prevalence on education levels shows big gap in information campaigns or public health education. Also, we should extend the research in this field and its application into practice [9, 10, 11,

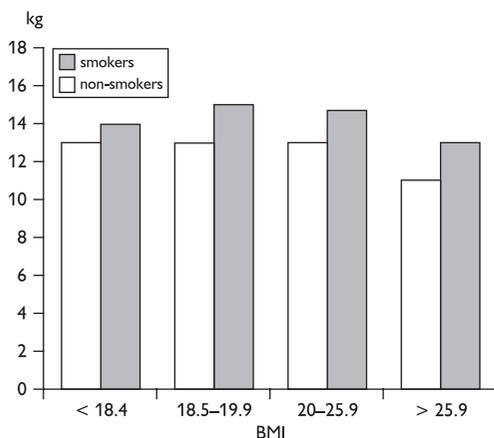


Figure 1 – Gaining weight during pregnancy.

Table 6 – Source of mother's knowledge about health impact of smoking on baby.

	%
Parents	13
mother	12
father	1
Larger family, friends	23
Gyneacologist (or staff)	5
Books, journals	23
Leaflets, booklets	5
Other media	14
Smoking cessation specialist	0
Other sources	15

N=263, in %, more answers were possible

12]. Simple methods like picture health warnings on cigarette boxes could be used – like in Canada since January 1st, 2001, on 50% of large surfaces of the pack [13].

Conclusions

Smoking prevalence among Czech pregnant women is similar to that of comparable populations, but this situation is not positive – population oriented actions to lower smoking during pregnancy or higher involvement of physicians is needed, especially in the low educated part of population. The knowledge about the health impact of smoking during pregnancy is very low. The typical influence of smoking on anthropometric parameters was confirmed in our sample. Gynaecologists-obstetricians miss the opportunity both to inform their patients about the risks of smoking as well as to offer the effective treatment to smokers willing to stop.

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