



# Knowledge, Attitudes, and Behaviors of Pregnant Women Regarding Smoking Who Were Admitted to the Obstetrics Clinic of the Bülent Ecevit University Hospital

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## Abstract

**Objective:** Smoking in pregnancy and postpartum period causes serious healthy risks for fetuses, newborns, and children. The purpose of this study was to determine the prevalence of smoking and associated socio-demographic factors and knowledge, attitude levels, and behaviors of pregnant smokers.

**Methods:** A descriptive study was performed on 335 pregnant women who were admitted to our clinic between March 1 and April 30, 2014. A questionnaire prepared by researchers comprising 24 questions was applied to eligible women. Statistical analysis was performed using SPSS 19 software program. Descriptive statistical data are presented as frequencies, and measurements are presented as mean  $\pm$  standard deviation. Chi-square test was used for comparison between categorical variables. Mann–Whitney U test and Kruskal–Wallis analysis of variance were used for comparisons between paired groups.

**Results:** A total of 20.5% of pregnant women smoked throughout pregnancy. Education and income status of pregnant women did not have a significant association with smoking during pregnancy ( $p=0.172$  and  $p=0.203$ , respectively). Smoking status was compared with pregnancy, breastfeeding, and total knowledge scores. While a significant difference did not exist between pregnancy and total knowledge scores ( $p=0.126$ ,  $p=0.051$ ), knowledge scores of breastfeeding was significantly lower in smoking women ( $p=0.031$ ). Education status and knowledge scores were compared. Each of the three knowledge scores was higher in women with higher education levels ( $p=0.003$ ,  $p=0.000$ , and  $p=0.001$ ).

**Conclusion:** Smoking during pregnancy is a major health problem. Control frequency should be increased for pregnant smokers and for their babies as well as to aid in the early diagnosis of potential problems. Doctors, nurses, and midwives should remind patients who quit smoking during pregnancy that they should take professional help to not start smoking again in the postpartum period.

**Keywords:** Smoking, pregnancy, breastfeeding, fetus, newborn, child

## Introduction

Smoking is one of the most important health problems worldwide. Today, smoking is defined as a bio-socio-psychological state of intoxication by the World Health Organization (WHO). The habit of smoking is a social poisoning that occurs with the influence of individuals, and it is also a psychological intoxication with tolerance state and physical and psychological addictions (1, 2).

Increasing cigarette consumption in society also plays an active role in increasing risks related to pregnancy. The adverse effects of smoking during pregnancy are not only limited with cigarettes that a pregnant woman smokes but also can be caused by tobacco smoke in the environment (3). Smoking during pregnancy and the postpartum period poses serious risks for the fetus, newborns, and children (4). For these reasons, preventing pregnant women from smoking is important to protect the health of future generations. To reduce, or even completely quit smoking during pregnancy, it is necessary to know the amount of tobacco use and the knowledge, attitude, and behaviors of pregnant women who smoke.

This study was planned to determine the frequency of smoking in pregnant women who applied to the pregnancy clinic of Bülent Ecevit University Hospital, the sociodemographic factors that may affect the frequency of smoking, the process of pregnancy and lactation, and the level of knowledge about the harms of smoking to the baby.

## Methods

The study was conducted with 335 married pregnant women who applied to the pregnancy clinic of Bülent Ecevit University Hospital and who agreed to participate in the study between March 1 and April 30, 2014. Our study is a descriptive research. After receiving the required permissions from the ethics committee, a questionnaire was administered to participants who signed the written informed consent form. There are 24 questions in the survey about participants' demographic and economic situations and their level of knowledge about their smoking status and the pregnancy and lactation period. The correctness to the answers of the questions "Do you think that smoking during pregnancy damages the baby?" and "How does a breastfeeding mother's smok-

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ing habit affect the baby?” was considered as “correct knowledge, 1 point” and “incorrect knowledge, –1 point.” The expressions of “There is no harm” and “I do not know” were considered as incorrect answers and were considered as –1 point. Other options were considered as 1 point because they are correct. In the question about breastfeeding knowledge level, the options of “useful,” “no effect”, and “I do not know” were considered as wrong answers and evaluated as –1 point. Other correct options were considered as 1 point. The scores of pregnancy and breastfeeding knowledge of pregnant women were calculated based on these points. Accordingly, it was found that the pregnancy knowledge score were between –1 and 11 and breastfeeding knowledge score were between –1 and 8. In addition, the total knowledge score that varied between –2 and 19 was created by combining these two scores. The hunger limit per person was calculated to be 291.75 TL, which was obtained by dividing 1167 TL by 4, that is the hunger limit for a 4-person family (5). Pregnant women were divided into two groups as above and below this value.

### Statistical analysis

Statistical analyses were performed using the Statistical Package for the Social Sciences 19 software (SPSS Inc.; Chicago, IL, USA). Descriptive statistics were presented as frequency and measurements as average±standard deviation. The chi-square test was used in comparisons between categorical variables. It was shown with Kolmogorov–Smirnov test that the scores of knowledge did not conform to the normal distribution. Therefore, among non-parametric tests, Mann–Whitney U test was used in groups of two, and Kruskal–Wallis test was used in groups of three or more. The results were evaluated at a 95% confidence level.

### Results

The average age of pregnant women participating in the study was 27.9±5.2 (minimum 17, maximum 43) years. The sociodemographic characteristics of the pregnant women are given in Table 1. When the fertility characteristics of the pregnant women were examined, it was observed that 65.9% of them were multigravida and 34.1% was primigravida. The average number of gestations was 2.1±1.1 (1–7). While 81.4% of pregnancies were planned, 18.6% were unwanted pregnancies. 30.3% of participants had smoked before pregnancy. Before pregnancy, 6.6±6.2 cigarettes was smoked daily. While 79.5% of the pregnant women did not smoke at all during pregnancy, 12.6% quit when they learned that they were pregnant, 1.6% rarely smoked, and 6.3% smoked every day. An average of 4.6±4.2 cigarettes a day (1–20) was consumed during pregnancy (Table 2).

According to the education level, the smoking status during pregnancy is mentioned in Table 3. There was no significant correlation between education level and smoking during pregnancy ( $p=0.172$ ). In Table 4, the smoking status during pregnancy is mentioned according to the per capita income. There was no significant difference between income and smoking during pregnancy ( $p=0.203$ ).

Considering the answers to the question “Do you think that smoking during pregnancy is harmful to the baby?” it was observed that pregnant women most frequently replied “failure to thrive in infants” (62.7%). This response was followed by the options of “it

affects lung development in babies” by 57.4% of the women and “it causes mental retardation in babies” by 46.4%. While 3 pregnant women (1.4%) said “smoking does not harm in pregnancy,” 33 participants (9.8%) answered this question as “I do not know.” Considering responses to questions “How does breastfeeding mother’s smoking affect the health of baby?” it was seen that pregnant women said with the highest frequency “it damages the lungs” (48.7%). This response was followed by the options “the harmful substances passing to mother through smoke can pass to the baby through the milk, the baby cannot feed” with 48.4% of the women and “growth would not be good” with 46.9%. Fifty-eight women (20.9%) gave the response to this question as “I do not know.”

Smoking during pregnancy was compared with pregnancy knowledge scores, breastfeeding knowledge scores, and total knowledge scores, a statistically significant difference was not found in pregnancy knowledge scores and total knowledge scores ( $p=0.126$ ,  $p=0.051$ ), but the breastfeeding scores was statistically significant ( $p=0.031$ ) (Table 5). Participants who

**Table 1. Sociodemographic characteristics of pregnant women**

Sociodemographic characteristics		n	%
Education status	Illiterate	3	0.9
	Primary education	203	60.8
	High school	84	25.1
	University	42	12.6
	Postgraduate	2	0.6
Profession	Housewife	290	86.5
	Civil servant	15	4.5
	Worker	14	4.2
	Others	16	4.8

**Table 2. Smoking status of pregnant women**

		n	%
Were you smoking before pregnancy?	I never smoked	233	69.7
	I had quit smoking before I learned I was pregnant	25	7.5
	I had been smoking when I learned I was pregnant	76	22.8
Is there a smoker at home?	No	96	31.9
	Yes	205	68.1
Did you smoke during pregnancy?	I never smoked	252	79.5
	I quit when I learned I was pregnant	40	12.6
	I rarely smoke	5	1.6
	I smoke everyday	20	6.3
Reason for quitting smoking during pregnancy?	I thought it would be harmful to the baby	45	77.5
	Nausea	7	12.1
	Harm to the baby and nausea	5	8.7
	Stress	1	1.7

**Table 3. Smoking status during pregnancy according to education level**

Education status	Smoking during pregnancy							
	Never smoked		Quit during pregnancy		Smoking during pregnancy		Total	
	n	%	n	%	n	%	n	%
Below high school	156	75.7	20	9.7	30	14.6	206	61.7
High school and above	95	74.2	20	15.6	13	10.2	128	38.3
Total	251	75.1	40	12.0	43	12.9	334	100.0

p=0.172

**Table 4. Smoking status during pregnancy based on per capita income**

Income groups	Smoking status during pregnancy							
	Never smoked		Quit when pregnant		Smoking during pregnancy		Total	
	n	%	n	%	n	%	n	%
Below hunger limit	90	79.6	10	8.8	13	11.5	113	36.9
Above hunger limit	137	71.0	29	15.0	27	14.0	193	63.1
Total	227	74.2	39	12.7	40	13.1	306	100.0

p=0.203

**Table 5. The relationship between smoking status during pregnancy and pregnancy, breastfeeding, and total knowledge scores**

Smoking during pregnancy		Knowledge scores about smoking		
		Lactation period	Pregnancy period	Total
		Mean±SD	2.30±2.68	4.04±3.81
Never smoked	Number	203	148	143
Quit during pregnancy	Mean±SD	2.61±2.43	3.92±3.21	6.79±5.25
	Number	36	37	33
Smoking during pregnancy	Mean±SD	1.34±2.48	2.38±2.80	3.43±4.51
	Number	38	24	23
Total	Mean±SD	2.20±2.64	3.83±3.63	6.20±5.86
	Number	277	209	199
p		0.031	0.126	0.051

SD: standard deviation

**Table 6. The relationship between education level and pregnancy, breastfeeding, and total knowledge scores**

Education status		Breastfeeding knowledge scores	Pregnancy knowledge scores	Total knowledge scores
Below high school	Mean±SD	1.87±2.60	3.01±3.55	5.12±5.89
	Number	164	117	112
High school and above	Mean±SD	2.71±2.62	4.91±3.47	7.69±5.53
	Number	112	91	86
Total	Mean±SD	2.21±2.63	3.84±3.63	6.23±5.86
	Number	276	208	198
p		0.003	0.000	0.001

SD: standard deviation

graduated from a high school got higher scores than who finished a school lower than high school (p=0.003, p<0.001, p=0.001) (Table 6).

### Discussion

In this study, the smoking prevalence of pregnant women was found to be 20.5%. When we look at similar studies published abroad, it is seen that this prevalence is between 13 and 25.1% (6, 7). In studies performed in our country, the smoking prevalence during pregnancy was found 11.6% in Kocaeli (8), 19.1% in Manisa (9), and 17% in Sivas (10). In the data of the Turkey Demographic and Health Survey (TNSA, 2003), the prevalence of smoking during pregnancy was found to be 15%. These findings show that smoking is common among pregnant women and a major health problem.

60% of the women smoking before pregnancy quit smoking when they learned that they were pregnant. Health personnel have very

important tasks to develop this positive situation to cover all pregnant women who smoking. However, it is also a concern that smoking continues until the time when pregnancy becomes known because this period generally includes the entire embryonic period.

When the reasons for quitting smoking were questioned, it was observed that 77.6% of them quit smoking because it was harmful to the baby, 12.1% quit because of nausea, and 8.7% quit because of both reasons. In a similar study conducted in Konya, 70.4% of pregnant women who quit smoking stated that they quit it because it was harmful for their babies, 22.2% quit because it caused nausea and disgust, and 7.4% quit because of both reasons (11).

“Failure to thrive,” “lung problems”, and “mental retardation” were the first 3 correct answers given to the question “Do you think that smoking during pregnancy is harmful to the baby?” In a similar study conducted in Kocaeli, “failure to thrive,” “lung problems”, and “premature labor” were the first 3 correct options (8). It is obvious that mothers are aware of the harms of smoking to their babies. However, there are those who cannot quit smoking because of the strong nicotine addiction. Therefore, gynecologists and obstetricians and smoking cessation clinics have important tasks. Considering the answers to the question “How is the health of the baby

of a breastfeeding mother who smokes,” the knowledge of “the harmful substances passing to mother through smoke can pass to the baby through the milk” is known more than other issues, but still, it is insufficient. Therefore, mothers should be informed at every opportunity.

When smoking and knowledge scores were compared, the knowledge score of those smoking during pregnancy was lower. This makes us think of the result that a lack of knowledge was effective in maintaining smoking. When education level and knowledge scores were compared, those with a high school education and above had a higher level of knowledge in both score types. Educational status also affected smoking cessation. While the smoking cessation rate in those with an education lower than high school was 9.7%, it was 15.6% in those with a high school education and above. These findings show that the time spent in formal education positively effects smoking cessation during gestation.

## Conclusion

According to the results obtained from the study, consultancy and training programs about the harms of smoking for both mothers and babies should be planned by health personnel. During antenatal examinations, the status of smoking and attitudes of pregnant women should be investigated; pregnant women and their families who are identified as smokers should be encouraged to quit smoking. For the purpose of the early diagnosis of potential problems that may occur in a pregnant women and the baby, the examination frequency should be increased, and pregnant women

who smoke should be reminded of taking necessary professional help to not start smoking again in the post-partum period by doctors, midwives, and nurses who perform the follow-up.

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