

Barriers to Smoking Cessation and Characteristics of Pregnant Smokers in Greece

Athina DIAMANTI^a, Aikaterini GALIATSATOU^a, Antigoni SARANTAKI^a,
Paraskevi KATSAOUNOU^{b, c}, Dimitra VARNAKIOTI^a, Aikaterini LYKERIDOU^a

^aDepartment of Midwifery, University of West Attica, Egaleo, Greece

^bSchool of Medicine, National and Kapodistrian University of Athens, Athens, Greece

^cFirst ICU, Evangelismos Hospital, Athens, Greece

ABSTRACT

Objectives: Nicotine addiction and the inability of a large part of pregnant smokers to quit is one of the main preventable causes of morbidity and mortality during the perinatal period. The aim of this study is to investigate nicotine dependence and overall smoking habits of pregnant smokers and to possibly correlate them with smokers' social and demographic characteristics.

Materials and methods: One hundred and fourteen pregnant smokers answered an electronic questionnaire consisting of 59 questions, which was divided into six sections. The questionnaires were filled out by participants from many regions of Greece and Cyprus.

Results: Before their pregnancy, women smoked 19 cigarettes per day on average, while during their pregnancy they dropped to eight cigarettes per day; 65.8% of respondents stated that their husband smoked, while 58.8% answered that they had been exposed to secondhand smoke; 13.2% of pregnant smokers stated that they had had depression at some point in their lives and 14.9% reported having undergone domestic violence; 55.3% of respondents acknowledged that smoking was responsible for a variety of adverse effects to the fetus; and 97.4% of pregnant women did not follow a smoking cessation counseling program, compared to just 2.6% who did.

Conclusions: The pregnant smokers in our study did not have appropriate information about the available smoking cessation services, which were not generally considered to be useful for them, and consequently they did not utilize cessation assistance. The resistance towards quitting smoking, which was observed in the sample, may also be attributed to the lack of specialized smoking cessation services in maternity hospitals in Greece.

Keywords: maternal smoking in pregnancy, smoking, tobacco, second hand smoke, smoking cessation, pregnancy complications, nicotine addiction.

Address for correspondence:

Dr. Athina Diamanti

Midwifery Department, University of West Attica, Egaleo, Greece

Land line: +30 2130239669

ORCID: <https://orcid.org/0000-0002-5963-3318>

Email: adiamanti@uniwa.gr

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INTRODUCTION

Smoking related conditions are the leading cause of morbidity and mortality among the female population. The percentage of women who smoke worldwide ranges from 17%–22% (1). In Greece, recent studies show that this percentage appears to reach 37.7% in women aged between 18 and 34, which also happens to be their main reproductive period (2). According to the World Health Organization (1), the percentage of women who smoke worldwide is constantly increasing. This increase is observed mainly in economically weak countries and also encompasses an increase in the use of other tobacco products such as electronic cigarettes, hookah, etc. (1). Although pregnancy is a period with good rates of successful smoking cessation, compared to other periods in a woman's life, and despite the pregnant women strong motivation to quit smoking during this particular period, the prevalence of those who continue to smoke during pregnancy is considerably high, especially in Greece (3, 4). The presence of certain aggravating factors and obstacles which prevent them from quitting smoking during pregnancy is therefore evident.

Both first- and second-hand smoke exposure during pregnancy cause a plethora of unfavorable complications not only to the future mothers but also to the embryo. Outcomes of these complications will continue to affect the infant later in life during childhood and even adulthood (5-12).

Being able to detect the social, financial, demographic, stress inducing, psychological and biological risk factors associated with failure to quit smoking during pregnancy early enough will definitely contribute to the reduction or prevention of unfavorable outcomes that smoking has on pregnancy itself as well as on the health of the embryo and that of the infant-to-be.

The aim of the study was to detect the factors which affect women's smoking status and especially those that prevent pregnant women from quitting smoking. □

MATERIAL AND METHODS

Study design and population

This is a cross-sectional study, electronically conducted between September 2019 and December 2019, with female participants from

various places of Greece and Cyprus. Despite the relatively small size of our sample, it consisted of individuals with various educational, social and economic levels, therefore qualifying as representative sample.

Research questionnaire

The research questionnaire consisted of 59 questions and was divided into six sections. Various types of questions were used such as dichotomous, categorical, short answer, Likert type and multiple choice. The questionnaire had the following structure:

- the first section explored the smoking status and included 19 questions;
- the second section explored nicotine addiction and included 11 questions;
- the third section explored smoking cessation efforts and included six questions;
- the fourth section explored health effects and included 11 questions;
- the fifth section explored the interventions for smoking cessation and included five questions;
- the sixth section explored demographic characteristics and included seven questions.

All study procedures were performed in accordance with the ethical standards of the university institutional research committee as well as the 1964 Helsinki Declaration and its later amendments. No personally identifiable information was collected and all electronic forms were anonymous. The questionnaire used in the study is a synthesis of the questionnaire of Fagerstorm & Schneider (1989) (13) concerning smoking dependence and some questions regarding subjects' sociodemographic characteristics. The questionnaire was licensed by (14).

The survey link was primarily shared via email, Facebook and Instagram. It was also promoted through pregnancy-specific professional communities for distribution over their networks of pregnant women.

Statistical analysis

It was performed in the statistical program IBM SPSS 24 in parallel with the use of Microsoft Office Excel 2016. Ordinal variables and quantitative variables were presented with mean values and standard deviations, and categorical variables with frequencies and percentages.

Mann Whitney or Kruskal Wallis non-parametric control was used to check the dependence of a quantitative variable of quality two or three and more categories, respectively, in the cases where there were small samples ($n < 30$) or samples which did not follow the normal distribution. The initial hypothesis of the test was that the k samples ($k \geq 2$) were from the same population and the alternative hypothesis was that they were from different populations. Independent samples t-test was used to check the mean values of two samples following the normal distribution. The initial hypothesis of the test was that the mean values were equal, while the alternative hypothesis was that they differed. The X^2 test of independence was used to control the dependence of quality variables. The initial hypothesis of control was that the variables were independent, while the alternative hypothesis was that they are dependent. The significance level of the tests was set to 5%, with the initial hypothesis being accepted for p -value ≥ 0.05 and rejected when p -value < 0.05 (Kolyva-Macheira, Bora-Senta & Bratsas, 2017).

Data reliability

Data reliability was calculated using the Cronbach alpha coefficient, where values greater than 0.7 were considered acceptable (15). The survey questionnaire had only two factors which resulted from Likert type questions and the reliability was greater than 0.790. □

RESULTS

One hundred and fourteen pregnant smokers aged 19-42 years consented to take part in the present study; 41.2% (N=47) of participants were aged between 25 and 30 years, 32.5% (N=37) between 31 and 36, 15.8% (N=18) between 37 to 42 and the remaining 10.5% (N=12) between 19 and 24 years. Of all pregnant women, 56.7% had an expected pregnancy and 97.4% (N=111) of them had a desired pregnancy. Regarding the gestational age, 30.7% of all pregnant women (N=35) reported being at 24 to 33 weeks of gestation, 28.9% (N=33) at 14 to 23, 24.6% (N=28) at 4 to 13 and 15.8% (N=18) at 34 to 40 weeks of gestation. The sociodemographic characteristics of the sample are presented in Table 1.

TABLE 1. Socio-demographic data

Characteristics	Age group (years)	N=114*	F%**
Age (years)	19-24	12	10.5
	25-30	47	41.2
	31-36	37	32.5
	37-42	18	15.8
Nationality	Greek	104	92
	Albanian	4	3.5
	Bulgarian	2	1.8
	Cypriot	3	2.7
Gestational age (weeks)	4-13	28	24.6
	14-23	33	28.9
	24-33	35	30.7
	34-40	18	15.8
Marital status	Single	7	6.1
	Married	95	83.3
	Divorced	1	0.9
	Separated	1	0.9
	Cohabitation agreement	10	8.8
Work status	Public sector	11	9.6
	Private sector	44	38.6
	Self-employed	15	13.2
	Part time	7	6.1
	Unemployed	16	14.0
	Housewife	21	18.4
Educational level	Primary school	11	9.6
	Middle school – High school	26	22.8
	Vocational training	24	21.1
	University / College	41	36.0
	MSc	9	7.9
	PhD	3	2.6
Yearly income (€)	0-7 000	52	45.6
	7 001-10 000	20	17.5
	10 001-15 000	23	20.2
	15 001-20 000	13	11.4
	over 20 000	6	5.3

*N= sample

**F%= frequency%

Interestingly, in Table 1 it can be seen that the vast majority of participants report an annual income of less than 15,000 euros. Additionally, Table 2 shows important details about the smoking history of pregnant women who participated in the survey (e.g., how many cigarettes they smoked and for how long, etc), their exposure to second hand smoke, abnormalities in their previous pregnancies (e.g., premature births, etc.) and the smoking status of their partners.

Of all participants, 32.5% (N=37) reported they had given birth prematurely in a previous pregnancy. Additionally, of all pregnant smokers,

Questions	Mean	SD*
How long have you been smoking cigarettes? (years)	13.5	5.38
How many cigarettes did you smoke before pregnancy? (per day)	19.1	8.06
How many cigarettes do you smoke? (per day)	7.94	6.92
Which month of your pregnancy are you at?	5.52	2.35
How many times have you been pregnant? (including miscarriages and stillbirths)	2.07	1.34
How many children do you have?	1.47	0.93
If you have given birth prematurely, mention the neonates' body weight at birth.	2.06	0.19
How many times have you given birth prematurely?	1.11	0.33
What was the weight of your previous child in grams?	3152	451
If your partner smokes, how many cigarettes does he or she smoke (per day)?	20.2	9.95
Approximately how many cigarettes does your partner smoke at home in your presence (exposure to second hand smoking)?	10.4	8.5

TABLE 2. Past and present smoking status, abnormalities in previous pregnancies and other data

*SD: standard deviation

28.9% (N=33) responded that some of their previous pregnancies had been miscarriages and 2.63% (N=3) had vaginal bleeding during the current pregnancy. In our sample, it seemed that another disadvantage of smoking during pregnancy was the lack of exercise, as 70% (N=7) of pregnant smokers stated they have actively avoided exercising because they smoke.

Furthermore, 36.0% (N=41) of pregnant smokers reported being exposed to tobacco smoke in their workplace and 58.8% (N=67) to secondhand smoke in public places; 65.8% (N=75) of the sample mentioned their partners smoked and 94.7% (N=108) of pregnant smokers stated they had friends who were smokers.

Of the entire sample, 13.2% (N=15) had an old or recent history of depression and 14.9% (N=17) an old or recent history of domestic violence. In addition, the majority of participants (53.5% (N=61) were highly addicted to nicotine. Table 3 shows that 38.6% (N=44) of pregnant smokers reported smoking within six to 30 minutes after waking up, and 14.9% (N=17) within five minutes, which is an indicator of higher levels of nicotine addiction. Also, Table 3 summarizes more data on participants' smoking habits.

A very interesting result of our study was the observation that 97.4% (N=111) of pregnant smokers did not follow counseling programs for smoking cessation neither in the past nor in the present pregnancy, while only 2.6% (N=3) re-

ceived some help. Only 10.5% (N=2) of pregnant smokers reported having managed to quit smoking in the past without help. Despite the difficulties for smoking cessation reported by pregnant smokers, it is very encouraging nevertheless that 49.6% (N=56) of smokers stated they were actually considering the possibility of quitting smoking. A larger percentage (about 60% of respondents) positively regard the implementation of the anti-smoking law (new legislation prohibiting smoking in public places).

Only 2.6% (N=3) of pregnant smokers answered that the main source of information about the negative consequences of smoking was the obstetrician or the midwife, while the vast majority of them received information from the media, the Internet, their family and friends.

In Table 3, important details about pregnant smokers' smoking habits can be seen.

There was also a statistically significant difference between the number of cigarettes smoked by pregnant women daily, the number of smoking cessation attempts and the duration (in days) of smoking cessation achieved compared to their educational level.

Table 4 summarizes the results of the Kruskal Wallis tests of the quantitative-ordinal variables of our study which refer to the smoking status in relation to educational level. A statistically significant dependence was found in the variables "How many cigarettes do you smoke a day?" [H (2)=11.919, p=0.003], "How many times have you tried to quit smoking?" [H (2)=7.280,

Questions	Answers	N*	F%**
How soon after you wake up do you smoke your first cigarette?	After one hour	28	24.6
	Within 30 to 60 minutes	25	21.9
	Within six to 30 minutes	44	38.6
	Within five minutes	17	14.9
Do you find it difficult to refrain from smoking in places where it is forbidden, e.g., in church, at the library, in the cinema?	No	62	54.4
	Yes	52	45.6
Which cigarette would you hate most to give up?	Any other	38	33.3
	The first in the morning	76	66.7
How many cigarettes <i>per day</i> do you smoke?	10 or less	86	75.4
	11 to 20	16	14.0
	21 to 30	9	7.9
	31 or more	3	2.6
Do you smoke more frequently during the first hours after waking up compared to the rest of the day?	No	50	43.9
	Yes	64	56.1
Do you smoke even when an illness forces you to stay in bed?	No	56	49.1
	Yes	58	50.9
Are there people in your friendly environment who smoke?	No	6	5.3
	Yes	108	94.7
How do you feel when you smoke?	Enjoyment /joyful	27	23.9
	Release/liberation/freedom	4	3.5
	Relief	12	10.6
	Relaxation	46	40.7
	Calmness/peacefulness	24	21.2
Why do you keep smoking during pregnancy?	To calm down from emotional stress	51	45.1
	For pleasure	12	10.6
	Because it banishes loneliness and fills my time	6	5.3
	Because it increases energy and helps at work	4	3.5
	By habit	36	31.9
	Other (constipation, deprivation, inability to relax)	4	3.5
Have you followed smoking cessation counseling programs?	Yes	3	2.6
	No	111	97.4
Have you used medication to quit smoking in the past?	No	24	57.1
	Nicotine replacement therapy	16	38.1
	Bupropion	2	4.8
Who informed you about smoking cessation interventions?	Doctor	38	55.1
	Midwife	6	8.7
	Other	25	36.2
Did you manage to quit smoking with some of those interventions?	Yes	5	6.6
	No	71	93.4
With what intervention did you finally manage to quit smoking?	I did not manage to quit	13	68.4
	Without any help (I managed on my own)	2	10.5
	Other (e-cigarette, counseling from my doctor)	4	21.1

TABLE 3. Fagerstrom test and smoking habits of pregnant smokers

*N=sample

p=0.026] and “For how long (days) have you managed to quit smoking?” [H (2)=6.066, p=0.048].

Table 5 presents the results of the X² tests of the qualitative-dichotomous variables of our study which refer to the smoking behavior in

TABLE 4. Results of Kruskal Wallis tests regarding participants' level of education and smoking status

Quantitative-operative variables	Kruskal Wallis, H(2)-test	p-value
For how many years have you smoked?	0,004	0.998
How many cigarettes did you smoke before pregnancy <i>per day</i> ?	0,052	0.974
How many cigarettes do you smoke <i>per day</i> now?	2.873	0.238
How soon after you wake up do you smoke your first cigarette?	3.232	0.199
How many cigarettes do you smoke <i>per day</i> ?	11.919	0.003
Nicotine addiction	1,102	0.576
Opinion on the measures of banning smoking in public places	2.401	0.301
How many times have you tried to quit smoking?	7.280	0.026
For how long (days) have you managed to quit smoking?	6.066	0.048

TABLE 5. Results of X² tests in relation to annual income

Qualitative-dichotomous variables	X ² *	p-value
Are you exposed to secondhand smoke at work?	4.068	0.254
Are you exposed to secondhand smoke in public places?	1.657	0.647
Is it difficult for you not to smoke in places where smoking is prohibited?	0.261	0.967
Do you smoke even when an illness forces you to stay in bed?	0.686	0.876
Have you tried to quit smoking?	1.064	0.786
Do you think you are addicted to nicotine / cigarettes?	0.512	0.916
Have you ever felt that your smoking habit has isolated you from your social environment?	6.383	0.094
Do you think that smoking has enhanced your sociability?	2.875	0.411
have you followed smoking cessation counseling programs?	5.886	0.117
Have you used prescribed medication to quit smoking in the past?	8.873	0.031
Did you manage to quit smoking with smoking cessation interventions?	2.250	0.522

*X²: Pearson's chi-squared test

relation to annual income, where a statistically significant dependence was identified in the variable "Have you used drugs to quit smoking in the past?" [X² (3)=8.873, p=0.031]. □

DISCUSSION

The majority of participants were aged between 25 and 36 years [41.2% (N=47) between 25 and 30 years and 32.5% (N=37) between 31 and 36 years], and data were consistent with previously reported maternal age patterns in Greece (3,4).

Almost half (45.6%) of pregnant smokers stated that they had an annual income of less than 7 000 euros. As in previous studies, a statistically significant difference of annual income and smoking status during pregnancy has been reported. We have also found a statistically significant difference between different annual incomes and smoking status of pregnant women; this finding was in line with an earlier study in

which pregnant women who quitted smoking spontaneously had higher annual incomes (16).

Another important finding that is in agreement with previous research in Greece (3) as well as other international studies (16) is the statistically significant difference in the level of education of participants and their smoking status and behavior. In our study, half of pregnant smokers did not have higher education, while there was a statistically significant difference in many variables related to participants' smoking behavior (such as smoking cessation efforts) and their educational level. In the Linares Scott 2009 study, pregnant women who quitted smoking spontaneously had a higher level of education and smoked a smaller number of cigarettes *per day* before pregnancy (16).

Our study has found that the vast majority (97.4% / N=111) of pregnant smokers did not receive help from someone specialized in smoking cessation. Although pregnant smokers made unsuccessful smoking cessation efforts in the past

and some of them were aware of the adverse effects of smoking in pregnancy, it was noted that perinatal care in Greece was not offering either nicotine replacement therapy or smoking cessation counseling; consequently, very few pregnant smokers end up receiving such services. This has also been observed in a previous study that was conducted in Greece in 2019. In particular, in the survey of Diamanti *et al*, only 5.4% of pregnant smokers received help from a healthcare professional trained in smoking cessation (3). Unfortunately, the percentage of pregnant smokers who used to visit smoking cessation clinics or seek help from a healthcare professional specialized in smoking cessation has not increased, although many studies were showing high success rates of these programs and services (17). Additionally, the percentage of high nicotine addiction was found to be quite high in our sample (55%). Therefore, the significantly increased metabolism of nicotine in pregnancy could explain how important is to prescribe the proper dose and the proper combination of medication used in nicotine replacement therapy in order to achieve positive results (18).

As far as preterm delivery is concerned, 32.5% (N=37) of participants reported they gave birth prematurely in a previous pregnancy. According to previous studies, the overall rate of preterm delivery is approximately 4.3%. Smokers had a 40% higher risk of preterm delivery than non-smokers and there was a dose-dependent relationship between smoking and risk of preterm birth (19). Additionally, 28.9% (N=33) of pregnant smokers reported that some of their previous pregnancies ended in miscarriages and 2.63% (N=3) of pregnant smokers reported having vaginal bleeding during the current pregnancy. These findings are consistent with those provided by earlier studies reporting smoking-related complications during pregnancy (20, 21).

Regarding our sample's exposure to tobacco secondhand smoke, 36.0% (N=41) of pregnant smokers reported they were exposed in the workplace and 58.8% (N=67) in public places. Of all respondents, 65.8% (N=75) stated that their partners smoked too, while 94.7% (N=108) of pregnant smokers had friends who were also smokers. Thus, the partner, friends, and family of a pregnant smoker can generally support her efforts to quit smoking, and this often decisive contribution has been also observed in the inter-

national literature (5). In the case of pregnant smokers, failure to receive support from partner, family and social environment is a major factor which undermines the success of quit attempts during pregnancy (5, 9, 22). Previous studies have also reported that women who did not stop smoking during pregnancy typically had either family members or partners who smoked, or lived with relatives who were smoking (23, 24). Consequently, partners seem to play an important role in influencing women's smoking behavior in the perinatal period, and receiving support can significantly facilitate their efforts to quit. It is therefore evident that a partner who continues to use tobacco throughout a woman's pregnancy is a significant predictor of the current smoking status of the pregnant woman as well (12, 22, 24, 25).

Regarding the main sources of information on the negative effects of smoking in pregnancy, only 2.6% (N=3) of pregnant smokers pointed to their obstetrician and midwife, while the vast majority of them stated they received information from the public media, internet, their family and friends. This particularly small and, thus, worrisome percentage is not in accordance with the international literature, which reports that pregnant women are generally expecting to be referred to a medical specialist for particular health problems that may arise during pregnancy (e.g., to get smoking cessation treatment) while receiving care from health professionals who are monitoring their pregnancy. In a study conducted by Aveyard *et al*, in 2005 (26), pregnant women stated they expected midwives to ask them about smoking and advise them on quitting in case they smoked. On the other hand, midwives reported they generally faced difficulties in how to ask women about their smoking status, how to identify those who needed consultation, and how to support them in quitting smoking. Midwives were also concerned about potentially making women feel uncomfortable and whether this would be impacting the relationship of trust that a midwife is trying to build with pregnant women (27). The need to incorporate compulsory education for midwives and obstetricians at the undergraduate level as well as their lifelong education is therefore prominent, with emphasis being put on midwives working in primary healthcare settings (28).

Regarding the psychosocial status of pregnant women who participated in our study, 13.2% (N=15) of them reported having an old or recent history of depression and 14.9% (N=17) an old or recent history of domestic violence. There is an observed link between smoking and depression in several studies. However, the mechanism that connects them is not fully understood (29). The mechanism of smokers' behavior is complex, and psychological dependence enhances the correlation of positive emotions with smoking. Also, smoking during pregnancy is inextricably linked to the presence of either social or economic problems or even mental illness. Achieving smoking cessation in these groups of pregnant women is particularly difficult, the rate of successful attempts being as low as 6% (12). Finally, chronic exposure to tobacco smoke is found to adversely affect the mood of women due to alterations in the neurotransmitter pathways, which in turn could lead to the development of several psychological conditions (29).

Strengths and limitations

Our study has the following strengths. First, to our knowledge, it is the first study in Greece with a sample consisting only of pregnant smokers who could not manage to quit smoking. By using a questionnaire with several questions on issues that have not been raised or highlighted so far in any Greek study regarding the characteristics of this population, we managed to investigate the obstacles and special issues of this population in order to highlight their background conditions and to draw conclusions about the extent of the issue of smoking during pregnancy. Important risk factors that affect the maternal smoking status, such as mental disorders and level of nicotine addiction, partner's smoking status and exposure to second hand smoke were recorded. This data has provided a more accurate record of the characteristics of maternal smoking in pregnancy. Moreover, the results of our study indicate the ineffectiveness of strategies used so far, which emphasizes the necessity for adopting widely improved public health policies in order to more effectively tackle the problem of pregnant non-quitters.

Regardless, this study has also several limitations which should be considered. Firstly, maternal smoking status was assessed on the basis of

self-report and without further clinical assessment, and therefore, our results could potentially be affected by pregnant smokers who might have concealed their true smoking status. According to other relevant self-report studies, without measuring nicotine metabolites such as urinary cotinine, a considerable proportion of pregnant smokers – 25% in Shipton *et al's* study (30) and 10%-17.2% in Tong *et al's* study (31) – falsely declare that they have quit smoking. This should be taken into account in future studies, so that researchers should not rely solely on women's self-report of their smoking status but should also control and identify pregnant smokers either by measuring CO emissions or using a biochemical indicator such as urinary cotinine.

Secondly, data regarding the use of e-cigarettes and other electronic nicotine delivery systems (ENDS) were not recorded. However, e-cigarette and ENDS contain several harmful substances, and chemical compounds vary between different brands. Also, numerous experimental studies in animals suggest that nicotine in ENDS alters DNA methylation, induces birth defects, reduces birth weight and affects the development of their offspring's heart and lungs. Therefore, these products are not safe to use during pregnancy, just as regular tobacco products are not safe either. So far, there is limited research on the use of ENDS during pregnancy. A cross-sectional analysis (32) as well as a systematic analysis and meta-analysis (33) highlight the risks of having an increasing number of e-cigarette users in pregnancy and the consequent need to identify and inform pregnant women who are either ENDS users only or dual users (ENDS and cigarette) about the harmful effects of these products. □

CONCLUSIONS

Smoking disease is a major health problem in Greece. The percentage of smokers is the highest in Europe and among the highest in the world. There is also a very high rate of smoking during pregnancy both in terms of active smoking and as exposure to secondhand smoke.

It was found that a large proportion of pregnant smokers continued to smoke throughout their entire pregnancy without being offered the necessary specialized professional support for quitting smoking. Therefore, midwives and ob-

stetricians should receive training in smoking cessation, which would enable them to provide counseling and psychosocial intervention to all pregnant women who either continue to smoke or have recently stopped smoking. Furthermore, as part of their training, they should also be instructed to refer pregnant smokers to smoking cessation clinics, where they could receive more holistic smoking related interventions.

Smoking cessation clinics in Attica have been operating for decades with high success rates (some of them the highest in Europe) in smoking cessation due to the expertise of their specially trained healthcare personnel. It was immediately noticed that pregnant women who participated in our research did not have appropriate information about services provided by these clinics, which made them believe they could not find an effective support in those settings, and consequently did not visit them. The high rates of smoking as well as the morbidity reported by pregnant smokers for their previous pregnancies may also be due to the lack of specialized smoking cessation services in maternity hospitals.

Therefore, the present study highlights the need to establish smoking cessation clinics in maternity hospitals throughout the country and

to train all health professionals, mainly midwives and obstetricians, in smoking cessation. There is also a need for establishing vertical integration between maternity hospitals and the already existing smoking cessation clinics, so that the smoking cessation services already offered can become more accessible to women during the perinatal period.

The above findings are very important for a better execution of clinical practice for midwives and obstetricians working in obstetric care services during pregnancy and throughout the perinatal period and overall promote the health of women and their entire family. □

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Authors' contributions: AD participated in study design, data collection and analysis and interpretation and manuscript drafting. AG participated in study design, data collection and analysis and interpretation. AS and DV participated in manuscript drafting and literature revision. VK reviewed the manuscript and approved the submitted manuscript. AL contributed in the organization and supervision of the study and in the revision and final approval of the manuscript submitted.

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