Women who smoke and stop during pregnancy: who are they?

Quem são as mulheres tabagistas que param de fumar na gestação?

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Abstract

Objectives: to identify factors involved in not stopping smoking in spite of being pregnant.

Methods: standardized interviews were applied to 486 pregnant women in the pre-natal clinics of four health centers in the city of Rio de Janeiro, Brazil, between April 2003 and February 2004. Every time a smoker was identified, an additional interview, which included the Edinburgh Postnatal Depression Scale, the Fagerström scale for nicotine dependence, and the Screening Questionnaire for Adult Mental Disorders, was carried out.

Results: the prevalence of smoking, in the initial stages of pregnancy was 21.1%. Most smokers presented a low level of nicotine dependence. Thirty-six percent of them stopped smoking by the first trimester of the present pregnancy without any specific medical intervention. Important differences between those who were able to stop and those who were not were alcohol intake and number of previous attempts at abstinence. Women who stopped smoking drank less during gestation.

Conclusions: stopping smoking during pregnancy seems to be linked to a non-specific drive towards the well-being of the fetus. The number of previous attempts at abstinence was positively related to stopping at the beginning of pregnancy. In spite of the prevalence of the problem, there is still inadequate support for smokers in the prenatal services.

Key words *Smoking, Pregnancy, Psychiatric disorders, Alcohol drinking*

Resumo

Objetivos: identificar fatores envolvidos no comportamento de continuar fumando a despeito de estar grávida.

Método: entrevistas padronizadas foram aplicadas a 486 mulheres grávidas nas clínicas de pré-natal de quatro centros de saúde na cidade do Rio de Janeiro, Brasil, no período de abril 2003 a fevereiro 2004. Todas as vezes que uma fumante era identificada, uma entrevista adicional foi aplicada, contendo a Escala de Edinburgh para Depressão, a escala de Fagerstron para dependência de nicotina e o Questionário de Avaliação de Doenças Mentais em adultos.

Resultados: a prevalência de tabagismo nos estágios iniciais da gravidez foi de 21,1%. A maioria das tabagistas apresentou baixo nível de dependência de nicotina. Trinta e seis por cento das mulheres avaliadas pararam de fumar no primeiro trimestre da gestação sem qualquer intervenção médica específica. As mesmas beberam menos durante a gestação e haviam tentado parar de fumar mais vezes anteriormente.

Conclusões: os resultados sugerem uma motivação inespecífica para o bem estar do concepto que envolve as duas drogas lícitas. Aquelas que pararam, tentaram mais vezes anteriormente e também diminuíram o consumo de álcool na gestação atual.

Palavras-chave *Tabagismo, Gravidez, Transtornos psiquiátricos, Consumo de bebidas alcoólicas*

Introduction

Evidence of the toxicity of nicotine and other substances present in cigarettes is well-documented.[1] Besides lung problems and cancer of several organs, fetal development is one of the major concerns. Among the many complications of smoking during pregnancy are: the premature rupture of placenta, increased risk of miscarriage, low birth-weight, increased incidence of crib death and illnesses, such as, Wilms' tumor, lymphoma, and embryo tumors of the kidney in children.[2] Besides that, recent studies have also suggested an increase in the incidence of antisocial behavior in adults whose mothers smoked during gestation.[3,4]

Although there is some extensive literature regarding smoking and its treatment, there is relatively little data from controlled research about the specificities of the treatment of pregnant women. Some studies suggesting that pregnancy may be a motivational factor for nicotine abstinence have reported that stopping smoking during gestation was related to higher socioeconomic class levels, non-smoking partners and increased levels of education. On the other hand, those who are unable to stop would be more vulnerable to psychological disorders, have less financial support and more family problems.[5-8] Moreover, there is no absolute agreement among authors about risk factors that favor continuation of smoking during pregnancy. Cessation has been reported as less likely in older women, in those who are more addicted[9] and it is more likely to occur in women who consumed alcohol before pregnancy.[10] A first time pregnancy was positively related to quitting smoking.[10] Studies have been carried out in a number of countries. Knowledge of factors that are common to different cultures are of relevance to the understanding of those related to quitting smoking spontaneously and of nicotine-dependence itself. It has been recently claimed that the nature and course of nicotine dependence is not well-known. Therefore, such know ledge, obtained using studies in different populations, would lead to better treatment practices.

In Brazil, the prevalence of smoking in the initial stages of pregnancy is reported as 40.8%,[12] declining to 27% in the course of the pregnancy.[13] The limitation of these studies is that women who did not quit smoking were not characterized for sociodemographic variables or severity of nicotine dependence. The Brazilian Government and society have enforced a strong health policy against tobacco-smoking in the last five years. The effects of the new laws (restrictions on advertising, educational campaigns and treatment free of charge) have, as yet, not been extensively evaluated. It is expected that fewer adolescents will engage in smoking behavior and that society as a whole will be more aware of the deleterious effects of nicotine.

The present study was designed to add to the literature on smoking during pregnancy and factors associated with spontaneous quitting and, furthermore, to contribute to what is known on nicotine dependence in women.

Methods

All 486 pregnant women under the care of pre-natal services at four health centers in the metropolitan area of Rio de Janeiro, Brazil, between April 2003 and February 2004, were interviewed after formal consent. Health centers were located as follows: Belfort Roxo, Ramos, Santo Cristo and Niteroi. Interviewers were female professionals, one being a psychiatrist and two student social workers. They were familiarized with the instruments and supervised before and throughout data collection. The number of pregnant women approached (486) was predicted to be sufficient to yield enough pregnant smokers for analysis. Prevalence for this calculation was taken from Halal *et al*.[12]

Volunteers were invited to accompany the interviewer into an examining room. Thereafter, they were also invited to an interview based on sociodemographic and obstetric data (age, marital status, level of education, family income, and parity). Once a smoker was detected, an additional instrument was applied containing information regarding their smoking habits including age at which they began to smoke and whether their parents, or partner were smokers as well. Previous attempts to stop smoking were recorded and the following scales were used: the Fagerström scale, which rated the severity of dependence,[14] the Edinburgh Postnatal Depression Scale (EPDS) translated into Portuguese and validated[15] and the Screening Questionnaire for Adult Mental Disorders (SQAMD).[16] The SQAMD includes evaluation of drinking habits. These are questions relating to any kind of alcohol consumption, daily alcohol intake, binge-drinking once a week and excessive drinking behavior. This last question was not considered for comparison between groups for its excessive subjectivity. Two groups were formed for statistical comparisons: a) pregnant women who had quit within the first trimester of the present gestation (NS) and b) pregnant women who did not quit smoking (S).

Analyses were performed by using SPSS, version 10.0. Means were compared using Student's "t" test, for independent samples. When the criteria for parametric statistics were not met, non-parametric tests were carried out (Mann Whitney). Comparisons of proportions were carried out using the chi-square or Fisher's exact test. Significance levels were established at p=0.05.

Results

Sociodemographic and obstetric data were collected from all the 486 women initially approached. No cases of refusal to participate were recorded at this stage, although it is possible that the number of smokers was underestimated. The mean age was 24 years old, most of them had a low income (the family monthly income of 67.7% below US$300), 80% had a stable relationship with their partner. As for occupation, 47.1% were unemployed. Questions on education indicated that 2.9 % were illiterate and 48.5% had not completed the fourth grade of elementary school, which, in Brazil, covers children between 7 and 10 years of age approximately, and is composed of four grades). The average number of children per woman was 2.1. Women were interviewed regardless of gestational age, which was varied as follows: 14.6% first trimester, 40.7% second trimester and 44.7% third trimester.

Of these 486 pregnant women, 103 were smokers. Of the 103 pregnant smokers, 38 had stopped smoking within the first trimester, which represents a percentage of 36.8. It is important to state that they stopped smoking without any specific medical intervention.

Comparisons between the groups described above did not detect any difference in age, family income, education, steady marital status or complications during previous pregnancies (Table 1).

Therefore none of these variables influenced women's decision to stop smoking once they were pregnant. No significant differences were found in smoking related variables, such as smoking habits of their close family (parents and partner), nicotine dependence (Fagerström rates indicated very low dependence in both groups), or age of initiation into smoking. The average age of starting smoking was around 15 years of age. This average age did not differ between the groups. However, the number of previous attempts to stop smoking was different between groups: women who stopped smoking during the first trimester had tried stopping before significantly more times than those who did not stop (1.9 ± 1.2 x 1.2 ± 1.3; p=0.008). There were no differences between groups in terms of psychiatric disorders, as indicated by SQAMD and EPDS scales. However, some important differences were detected related to their drinking profile, as shown in Table 2. Women able to stop smoking during the first trimester were also able to drink significantly less, even when drinking behavior did not differ between groups before pregnancy.

Table 1

Sociodemographic data of pregnant women who spontaneously stopped smoking during the first trimester of pregnancy (Group S) compared to those who did not stop (group NS)

Sociodemographic data	Group S	Group NS
Age (mean ± sd)	24.4 ± 6.1	23.3 ± 6.5[a]
Family income		
(dollars/ month, mode)	400	400[b]
Education (years)[b]		
(mode)	< 8	< 8[b]
Steady marital status		
Yes	48 (74 %)	29 (76 %)[c]
Complications during previous pregnancies		
Yes	38 (58 %)	16 (42 %)[c]

Comparisons: a: Student's t test (p>0.05); b: Mann-Whitney test (p>0.05); c: χ^2 (p>0.05).

Table 2

Drinking profile of pregnant women who spontaneously stopped smoking during the first trimester of pregnancy (Group S) compared to those who did not stop (Group NS).

Drinking parameters	Group S (n=65)		Group NS (n=38)	
	n	%	n	%
Drinking before pregnancy				
Yes	42	64.5	24	63.1 a
Drinking during pregnancy				
Yes	24	36.9	7	18.4 b
Binge drinking once a week before pregnancy				
Yes	7	10.7	4	10.5 c
Binge drinking once a week during pregnancy				
Yes	5	7.6	0	0 c

Comparisons: a: χ^2 (p>0.05); b: χ^2 (p<0.05); c: Fisher (p>0.05).

Discussion

None of the gestational characteristics evaluated in our study were significant influences on quitting smoking within the first trimester and neither was the degree of nicotine dependence of any significance. Nevertheless, an important relation between drinking and smoking during pregnancy was found. Interestingly, both groups of smokers that is those who had been able to stop while pregnant, and those who had not, had a similar pattern of drinking before pregnancy. Thus, it is possible that there was a general motivation to protect the baby's health. Another possibility is that personality disorders may be associated with this behavior, even though this was not assessed in the present study. There was, however, no evidence of differential psychiatric disorders in the two groups as evaluated using the SQAMD or, more specifically, of depressive disorders, as evaluated using the EPDS.

Nicotine dependence was low in most women covered by our study, which suggests that behavioral techniques could be sufficient for treatment. Unfortunately such techniques were not available at the units studied. On the other hand, the women who had stopped smoking during the first trimester, presented increased numbers of prior attempts to quit in relation to the women who had continued smoking. Subjects who continued smoking also continued drinking during pregnancy. Data from the present study is alarming, because of the well known teratogenic effects of alcohol and the embryofetotoxic potential of nicotine. In the present study, of the 103 pregnant women who were smokers, 36% stopped within the first trimester. This data supports the awareness of pregnancy as motivational and corroborates data from other studies.[12,17,18] Spontaneous quitters at the beginning of pregnancy have been described as less likely to relapse by six months postpartum than women who quit smoking later in pregnancy.[9] This stage in a woman's life seems to be of special interest for chemical dependency intervention.

Conclusions

There is a strong association between smoking and the consumption of alcoholic beverages. This is of extreme relevance, as both drugs are harm fetus development. Pregnant women who stop smoking during the first trimester are also more likely to stop drinking.

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