

Smoking in pregnancy: A survey from Northern Italy

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The harmful effects of maternal smoking on low birth weight and perinatal mortality are well recognized^{1,2}. In the United States it has been suggested that if all women quit smoking in pregnancy, perinatal mortality rates would fall by approximately 10 percent³. However, a lot of women still smoke during pregnancy.

For example, a large survey conducted in 26 U.S. states between 1985 and 1986 on more than 800 pregnant and 18 000 non pregnant women, showed 21% of current smokers in pregnancy, only 9 percentage points lower than among non-pregnant women⁴.

In Italy 25% of women of reproductive age smoke and the percentage of smoking adolescents and teenagers is more higher than in the past^{5,6}. We present the results from of a survey of smoking in pregnancy conducted on about 400 women delivering in Milan, Northern Italy.

Methods and results

All women delivering at the «Luigi Mangiagalli» Clinic in Milan (the city's main maternity hospital) between January and April 1989 were questioned by trained interviewers before discharge. Information was obtained on general characteristics and habits, reproductive history and smoking habits in and out of pregnancy. Women were also asked about their awareness of maternal and fetal health effects of smoking, and the main sources of this information.

A total of 528 women (mean age 29, range 16-44) were interviewed. Less than 2% of identified subjects refused to be interviewed. The odds ratios (with their 95% confidence intervals) for stopping smoking in pregnancy were computed in various strata of age and education, from data stratified for quinquennia of age by the Mantel-Haenszel procedure⁷, and, when appropriate, tested for trend⁸.

Out of the 528 women interviewed, 183 (35%) were current smokers before pregnancy and 99 reported to have stopped smoking during pregnancy (90 in the first trimester). Thus 84 (16%) of interviewed women reported smoking in pregnancy (Table 1). The main reason given for stopping smoking was fetal well being in 73 (74%) and nausea while smoking in 26 (26%).

The probability of stopping smoking was similar in different strata of number of cigarettes smoked per

day (data not shown), decreased with increasing age and was lower in less educated women. These findings, however, were not statistically significant (Table 1).

Considering the persistent smokers only, the mean number of cigarettes smoked per day decreased from 13 before to 8 during pregnancy; this reduction was generally consistent in various subgroups of age and education (Table 2).

The large majority of smoking women (168/183, 91%) was aware of the harmful effects of smoke on fetal and maternal health; 30 had this information from their gynecologist or general practitioner, 121 from TV programs or magazines and 17 from friends or relatives. No difference in the probability of stopping smoking was observed in relation to the different sources of information.

Discussion

In this Italian population only approximately 50% of current smokers reported having stopped during pregnancy; consequently about 15% of pregnant women were smokers.

These estimates should not be markedly affected by bias. This survey was conducted in the largest maternity hospital in Milan; participation was almost complete and the estimated prevalence of current smokers outside pregnancy in various strata of age and education compares well with findings from the National Health Survey conducted in Italy in 1986-1987 on more than 30 000 females⁶.

In this study more than 90% of the women interviewed were aware that smoking raises the risk of a poor pregnancy outcome. Thus, it is possible that women tend to deny smoking or underestimate the number of cigarettes. However the interview was conducted after the delivery, when the mother was generally less anxious about fetal health. More in general the observation that the large majority of women were aware the smoking related risk in pregnancy, underlines the problem of lack of effectiveness of information to persuade women to give up smoking.

Our estimates appear similar to – perhaps slightly more favorable than – reports from the United States, where 20-25 percent of women were current smokers in pregnancy and the probability of giving up smoking was about 30-40%^{9,11}.

Tab. 1. Distribution of 529 delivering women according to smoking habits, age and education. Milan, Italy, 1989.

	Interviewed women	Current smokers out of pregnancy		Still smoked in pregnancy		Relative rate of stopping smoking (95% Confidence interval)
	No	No	%	No	%	
TOTAL SERIES	528	183	35	84	16	—
AGE						
≤ 25	92	46	50	16	20	1 ^a
26-35	363	117	32	53	15	0.6 (0.3-1.3)
≥ 36	73	20	27	15	18	0.4 (0.2-1.1)
Chi square						3.11 (p = 0.08)
EDUCATION (years)						
< 11	230	100	43	50	22	1 ^{a b}
≥ 12	298	83	28	34	11	1.4 (0.8-2.5)

^a Reference category.

^b Adjusted for age in quinquennia.

Studies on American populations have consistently showed that the likelihood of given up smoking in pregnancy is lower in older, lower social class and in unmarried women^{4, 10}, suggesting that in these categories the harm caused by smoking during pregnancy may not constitute a sufficient deterrent to give up smoking. Similar findings emerged in our survey, although these differences were not statistically significant, probably, at least in part, because of the small sample size.

Nonetheless, these findings show that there is still ample scope of prevention and intervention campaigns on smoking in pregnancy, particularly in older, less educated women, who show simultaneously higher prevalence of smoking in pregnancy and higher perinatal mortality rates¹².

Summary

The prevalence of smoking in pregnancy was analyzed in a survey of women delivering between January and March 1989 in a large maternity clinic in Milan, Northern Italy. Out of the 528 women interviewed, 183 (35%) were current smokers before pregnancy and 99 stopped smoking during pregnancy. The probability of stopping smoking decreased with increasing age and was lower in less educated women, but these findings were not statistically significant. Considering persistent smokers only, the mean number of cigarettes per day fell from 13 before to 8 during pregnancy; this reduction was generally consistent in various subgroups of age and education. The reductions, however, are probably overestimated, since they are based on the women's reports only. Thus, there still appears to be ample scope for intervention on smoking in pregnancy, particularly in older and less educated women.

Résumé

Tabagisme durant la grossesse : Une enquête en Italie du Nord

La prévalence du tabagisme durant la grossesse a été étudiée lors d'une enquête des parturientes entre janvier et mars 1989 dans une grande maternité de Milan. Parmi les 528 femmes interrogées, 183 (35%) étaient tabagiques avant la grossesse et 99 avaient arrêté de fumer durant la grossesse. La probabilité de cesser l'habitude diminue lorsque l'âge augmente, et est basse chez les femmes dont le niveau d'éducation est bas, sans signification statistique. En considérant uniquement les parturientes tabagiques, le nombre quotidien de cigarettes fumées passe de 13 avant la grossesse à 8 durant la grossesse; cette diminution se

Tab. 2. Number of cigarettes smoked per day before and during pregnancy according to select maternal characteristics. Milan, Italy, 1989.

	Mean number of cigarettes/day	
	before pregnancy	during pregnancy
TOTAL SERIES	13	8
AGE		
≤ 25	11	7
26-35	13	8
≥ 36	16	8
EDUCATION		
< 11	14	7
≥ 12	12	8

retrouve dans tous les groupes d'âge et tous les niveaux d'éducation. Ces diminutions sont probablement surestimées, puisqu'elles sont basées sur les seules déclarations des parturientes. Cette enquête montre qu'il existe encore une large place pour la prévention.

Zusammenfassung

Rauchen während der Schwangerschaft: Eine Querschnittstudie aus Norditalien

Die Rauchprävalenz während der Schwangerschaft wurde in einer Querschnittstudie bei Frauen untersucht, welche zwischen Januar und März 1989 in einer grossen Frauenklinik in Mailand ein Kind zur Welt brachten. Von 528 befragten Frauen hatten 183 (35%) vor der Schwangerschaft geraucht, und 99 Frauen war es gelungen, während der Schwangerschaft mit Rauchen aufzuhören. Die Wahrscheinlichkeit für letzteres nahm mit zunehmendem Alter ab und war kleiner für Frauen mit geringer Ausbildung (statistisch nicht signifikant). Bei den Raucherinnen wurde eine Reduktion der mittleren Anzahl Zigaretten von 13 Stück vor der Schwangerschaft auf 8 während der Schwangerschaft festgestellt. Diese Reduktion fand sich in allen Alters- und Ausbildungsgruppen. Wahrscheinlich wurde die Reduktion aber überbewertet, weil sich ihre Berechnung nur auf die Aussagen der Frauen abstützte. Für Gesundheitsaktionen, die ein Rauchstopp während der Schwangerschaft zum Ziele haben, besteht immer noch ein grosser Bedarf, besonders bei älteren und weniger ausgebildeten Frauen.

References

- 1 US Surgeon General. The Health Consequences of Smoking for Women. Department of health and human services, Washington, 1981: 189-239.
- 2 Stillman RJ, Rosenberg MJ, Sachs BP. Smoking and reproduction. *Fertil Steril* 1986; 46: 545-566.

- 3 Kleinman JC, Pierre MB Jr, Madans JH, Land GH, Schramm WF. The effects of maternal smoking on fetal and infant mortality. *Am J Epidemiol* 1988; 127: 274-282.
- 4 Williamson DF, Serdula MK, Kendrick JS, Binkin NJ. Comparing the prevalence of smoking in pregnant and non pregnant women, 1985 to 1986. *JAMA* 1989; 261: 70-74.
- 5 La Vecchia C, Decarli A, Pagano R. Prevalence of cigarette smoking among subsequent cohorts of Italian males and females. *Prev Med* 1986; 15: 606-613.
- 6 Ferraroni M, La Vecchia C, Pagano R, Negri E, Decarli A. Smoking in Italy, 1986-1987. 1989; 75: 521-525.
- 7 Mantel N, Haenszel W. Statistical aspects of the analysis of data from retrospective studies of disease. *J Natl Cancer Inst* 1959; 22: 719-748.
- 8 Mantel, N. Chi-square tests with one degree of freedom; extension of the Mantel-Haenszel procedure. *JAMA* 1963; 58: 690-700.
- 9 National Center for Health Statistics, Schoenborn CA. Health promotion and disease prevention: United States, 1985, US Dept of Health and Human Services Publication (PHS) 88-1591. Public Health Service, Washington, 1988.
- 10 Prager K, Malin H, Spieler D, Van Natta P, Placek PJ. Smoking and drinking behavior before and during pregnancy of married mothers of live-born infants and still-born infants. *Public Health Rep* 1984; 99: 117-127.
- 11 Kleinman JC, Kopstein A. Smoking during pregnancy, 1967-1980. *Am J Public Health* 1987; 77: 823-825.
- 12 Parazzini F, Imazio C, Pampallona S, La Vecchia C. Trends in perinatal, neonatal and postneonatal mortality in Italy, 1955-84. *Médecine Sociale Préventive* 1987; 32: 286-290.

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