

EFFECT OF SMOKING ON THYROID FUNCTION DURING PREGNANCY

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INTRODUCTION: Smoking affects thyroid function, but the magnitude and direction of the effect varies greatly with different studies. Less is known about the effect of smoking in thyroid function during pregnancy.

MATERIAL AND METHODS: Healthy pregnant women with not known thyroid dysfunction and resident in Cantabria, a region in northern Spain were questioned about smoking habit in the first trimester of pregnancy. Blood samples for TSH, free T4 (fT4) and free T3 (fT3) were obtained in the first, second and third trimester and for thyroid antibodies (TPO- and Tg- antibodies) in the first trimester of gestation. Other variables obtained were age, body mass index (BMI), education level and consumption of iodized salt or iodine supplement.

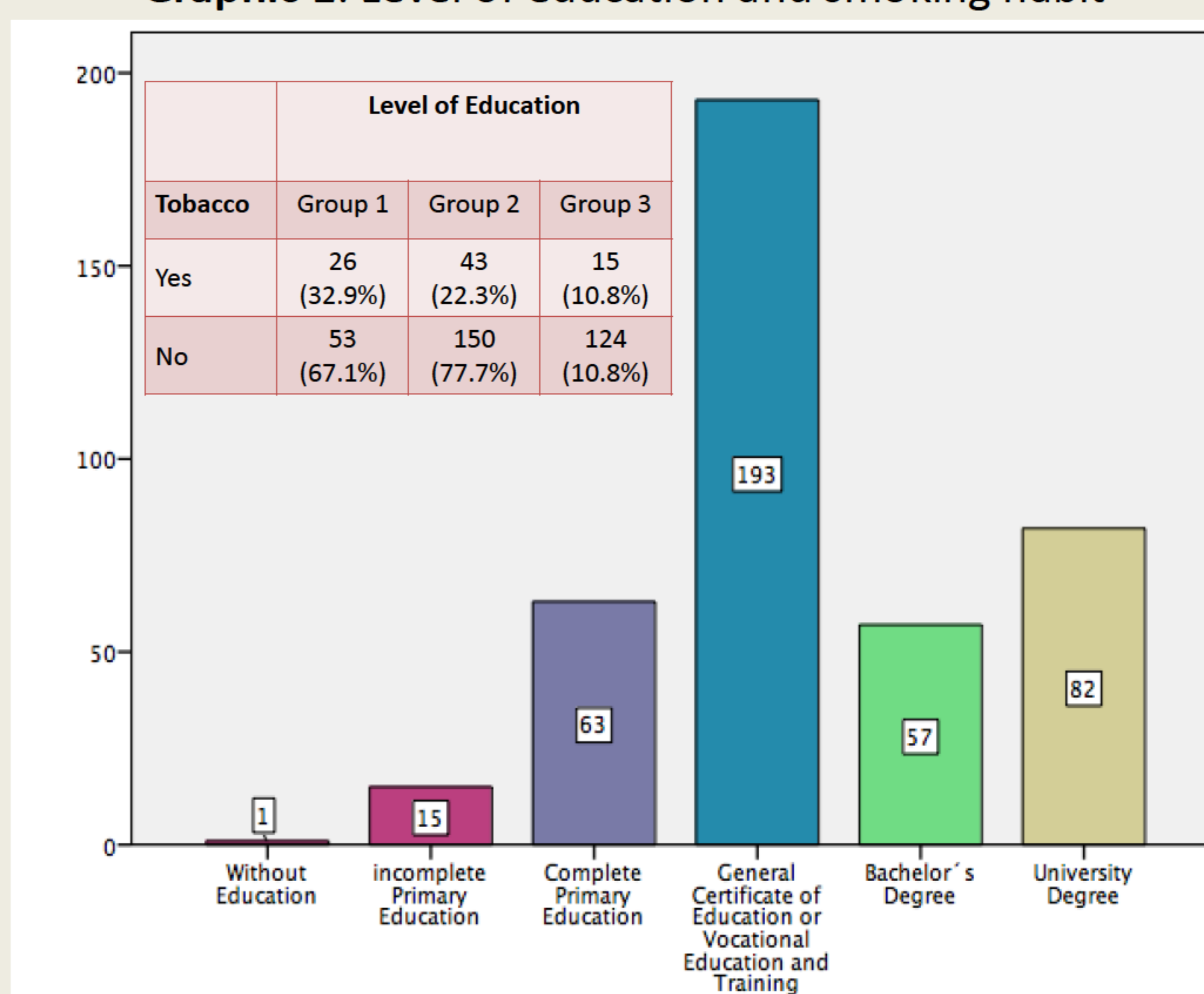
RESULTS: A total of 445 pregnant women with normal thyroid function were included (357 non-smokers and 88 smokers).

Table 1: Baseline characteristics

	TOTAL n=445	NON-SMOKERS N=357	SMOKERS N=88	p
Age	31.7 ± 4.7	31.7 ± 4.6	31.8 ± 5.0	NS
BMI	24.6 ± 4.7	24.4 ± 4.5	25.2 ± 5.8	NS
Iodized Salt	159 (38.7%)	130 (39.7%)	29 (34.5%)	NS
Iodine Supplement	297 (72.2%)	240 (73.4%)	56 (66.7%)	NS
Thyroid Antibodies	34 (7.6%)	30 (8.4%)	4 (4.5%)	NS

Age and BMI expressed as mean ± SD. Iodized salt, iodine supplement consumption and thyroid antibodies expressed as number and percentage. NS= Not significant

Graphic 1: Level of education and smoking habit



Spearman's Correlation $r=-0.197$; $p<0.01$. Group 1: Primary Education. Group 2: general certificate of education or vocational education and training. Group 3: Bachelor's and University Degree

Table 2: Thyroid function parameters in women without antibodies in relation to smoking

Tobacco	n	FIRST TRIMESTER			SECOND TRIMESTER			THIRD TRIMESTER		
		TSH μUI/ml	fT4 ng/dl	fT3 pg/ml	TSH μUI/ml	fT4 ng/dl	fT3 pg/ml	TSH μUI/ml	fT4 ng/dl	fT3 pg/ml
Yes	84	1.84 ± 0.99	1.03 ± 0.10	3.04 ± 0.36	2.10 ± 0.91	0.90 ± 0.10	2.97 ± 0.35	2.05 ± 0.74	0.85 ± 0.11	2.94 ± 0.34
No	327	1.61 ± 0.87	1.08 ± 0.11	2.95 ± 0.30	2.01 ± 0.79	0.91 ± 0.08	2.85 ± 0.30	1.97 ± 0.78	0.87 ± 0.09	2.88 ± 0.30
p		NS	<0.01	0.014	NS	NS	<0.01	NS	NS	NS

Thyroid function parameters expressed as mean ± SD. NS= Not significant

CONCLUSION: Smoking during pregnancy is associated with a lower fT4 in the first trimester and a higher fT3 in the first and second trimester of gestation. The effect size is slight and its clinical implications are unknown. The level of education was inversely related with smoking habit.

