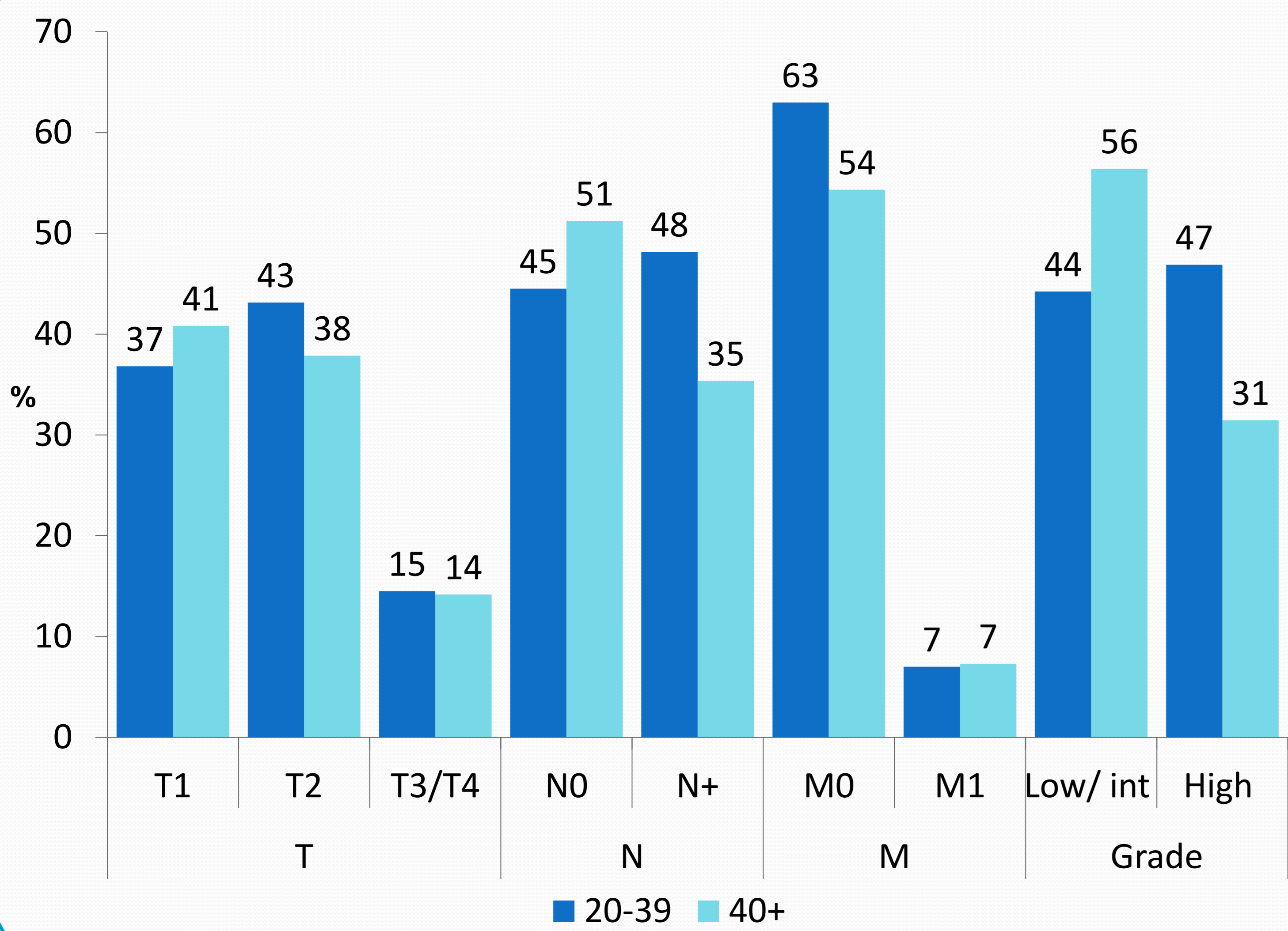# BREAST CANCER AMONG YOUNG WOMEN: CLINICAL CHARACTERISTICS AND TREATMENT TRENDS IN A POPULATION-BASED STUDY

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Introduction

Breast cancer is the commonest non-skin cancer among women in Ireland. Incidence among young women (<40 years-old) is very low, but international evidence shows that they tend to be diagnosed with more aggressive disease. The aim of this study was to compare tumour characteristics at diagnosis between young women and those aged ≥ 40, and to describe treatment trends among young women.

Methods

Breast cancers incident in Ireland between 2002 and 2008 were identified from the National Cancer Registry database. Women aged 20-39 were compared to women aged 40 and older using Poisson regression with robust error variance models. The variables included were T, N, M, grade, treatment, deprivation level, smoking status, marital status and area of residence. Wald tests were employed to select significant variables to be included in the final models using a stepwise selection.
Trends in treatment receipt were analysed using joinpoint analyses and reported as annual percentage changes (APC), for the period 2002-2008.

Figure 1. Distribution of clinical characteristics by age-group

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Results

Among 16,551 incident breast cancer cases 1013 were diagnosed in young women (6%). Young women had a significantly higher risk of presenting with nodal metastases (IRR: 1.44, 95%CI: 1.27, 1.64) and of being diagnosed with high grade tumours (IRR: 1.57, 95%CI: 1.37, 1.79). Young women (n=465) were significantly more likely to be diagnosed with luminal B (IRR: 1.75, 95%CI: 1.47, 2.09) and triple negative breast cancer (IRR: 1.47, 95%CI: 1.21, 1.79). During 2002-2008 a significant decreasing trend in breast conserving surgery was observed among young women (APC:-4.5, 95%CI: -7.9,-1.1), however, an increase in mastectomy rates was not significant (APC: 2.8, 95%CI: -0.4, 6.1). Radiotherapy receipt decreased significantly, by -2.6% annually (95%CI: -5.1, -0.1), and chemotherapy receipt remained high (83% for this period).

Table 1. Odds ratio and 95% confidence intervals for stage, grade and smoking status, comparison between 20-39 years-old and 40 and older.

	%	IRR (95% CI)	p-value
Nodal status			
N0	44.5	1.00	<0.001
N+	48.2	1.44 (1.27, 1.64)	
Unknown	7.3	0.78 (0.60, 1.01)	
Metastasis			
M0	63.0	1.00	0.009
M1	7.0	0.81 (0.64, 1.03)	
Unknown	30.0	0.82 (0.72, 0.94)	
Grade			
Low/Intermediate	44.2	1.00	<0.001
High	46.9	1.57 (1.37, 1.79)	
Unknown	8.9	1.10 (0.88, 1.39)	
Subtype*			
Luminal A	50.1	1.00	<0.001
Luminal B	17.2	1.75 (1.47, 2.09)	
Her2-overexp	6.2	1.13 (0.86, 1.48)	
TNBC	13.8	1.47 (1.21, 1.79)	
Unknown	12.7	0.96 (0.82, 1.12)	
Current smoker			
No	75.6	1.00	<0.001
Yes	24.4	1.34 (1.17, 1.54)	

Figure 2. Time trends in breast cancer surgery, 2002-2008.
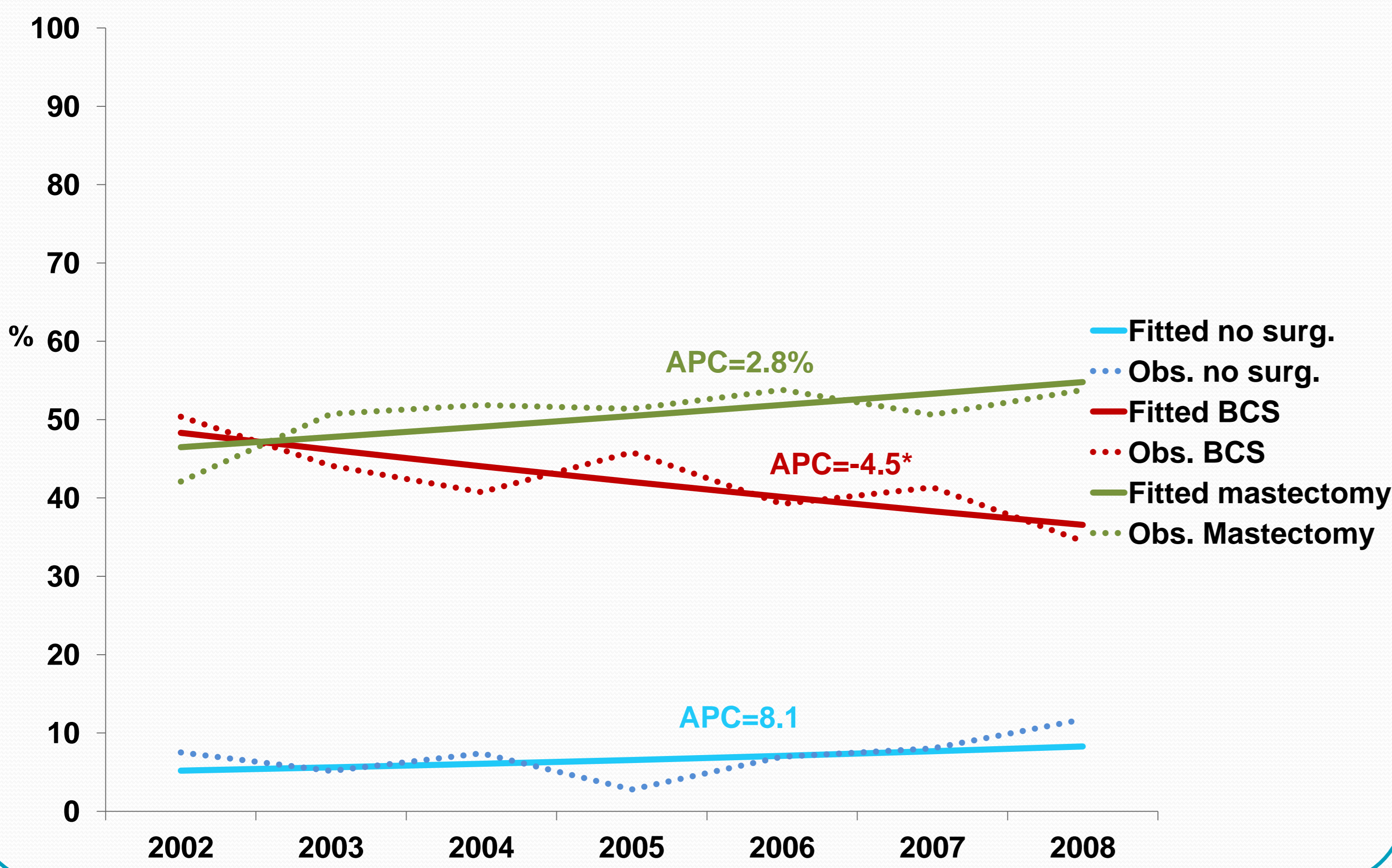
APC: Annual percentage change (%)
*Significant APC..

Figure 3. Time trends in breast cancer treatment, 2002-2008.
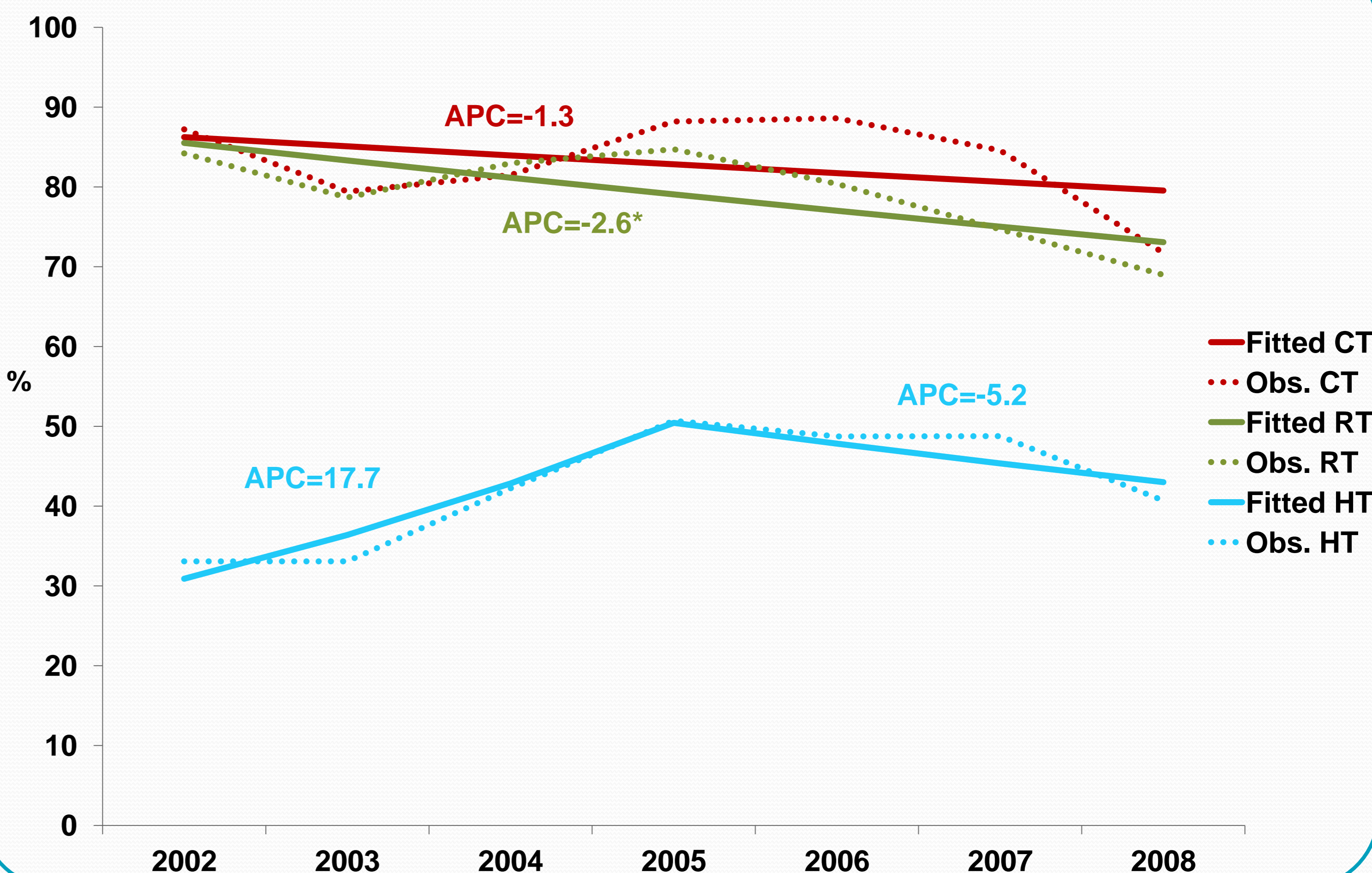
APC: Annual percentage change (%)
*Significant APC.

Conclusions

Young women were diagnosed with more advanced and more aggressive disease compared to their older counterparts, but socio-demographic characteristics did not differ among these two age-groups. Surgical treatments became less conservative over time; further analyses are necessary to evaluate the impact of treatment changes on survival.