



Prevalence of HPV in tumor samples from 761 patients with head and neck squamous cell carcinoma and its association to clinical and epidemiological data in Brazilian patients

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Objective

Analyze the profile of patients with head and neck squamous cell carcinoma (SCC) according to HPV positivity in tumor samples

Methods

We performed a retrospective study in a prospective cohort established by the GENCAPO research group, a consortium of five public hospitals in São Paulo, Brazil. We retrieved FFPE tumor samples from 761 patients between July 2000 and August 2011 with squamous cell carcinoma of the oral cavity, oropharynx, hypopharynx, and larynx, without prior treatment. HPV DNA was performed by two PCR methods: INNO-LiPA and BD Onclarity. Data on age; sex; ethnicity; schooling; smoking; alcoholism; BMI; tumor grade; lymph node and distance metastasis and clinical tumor volume, as well as survival after diagnosis were analyzed according to site and HPV status

Results

We detected HPV in 70 (9.2%) of patients with HNSCC of all sites and 11.5% of patients with oropharyngeal (OP) tumors. At univariate analysis, patients with HPV+OP tumors had a lower alcohol (p = 0.0345) and tobacco (p = 0.0002) consumption, a higher BMI (p = 0.0028), and were more frequently non-whites (p = 0.0065). Analyzing by sites, we found that for larynx, HPV positive patients have a lower average age (p = 0.0248) and higher education (p = 0.0179). When we analyzed patient survival at 5 years, we found that for oropharynx, HPV positive patients had a longer survival compared to negative HPV (p = 0.0497), but for non-oropharynx sites, HPV status did not impact survival.

Discussion and Conclusion

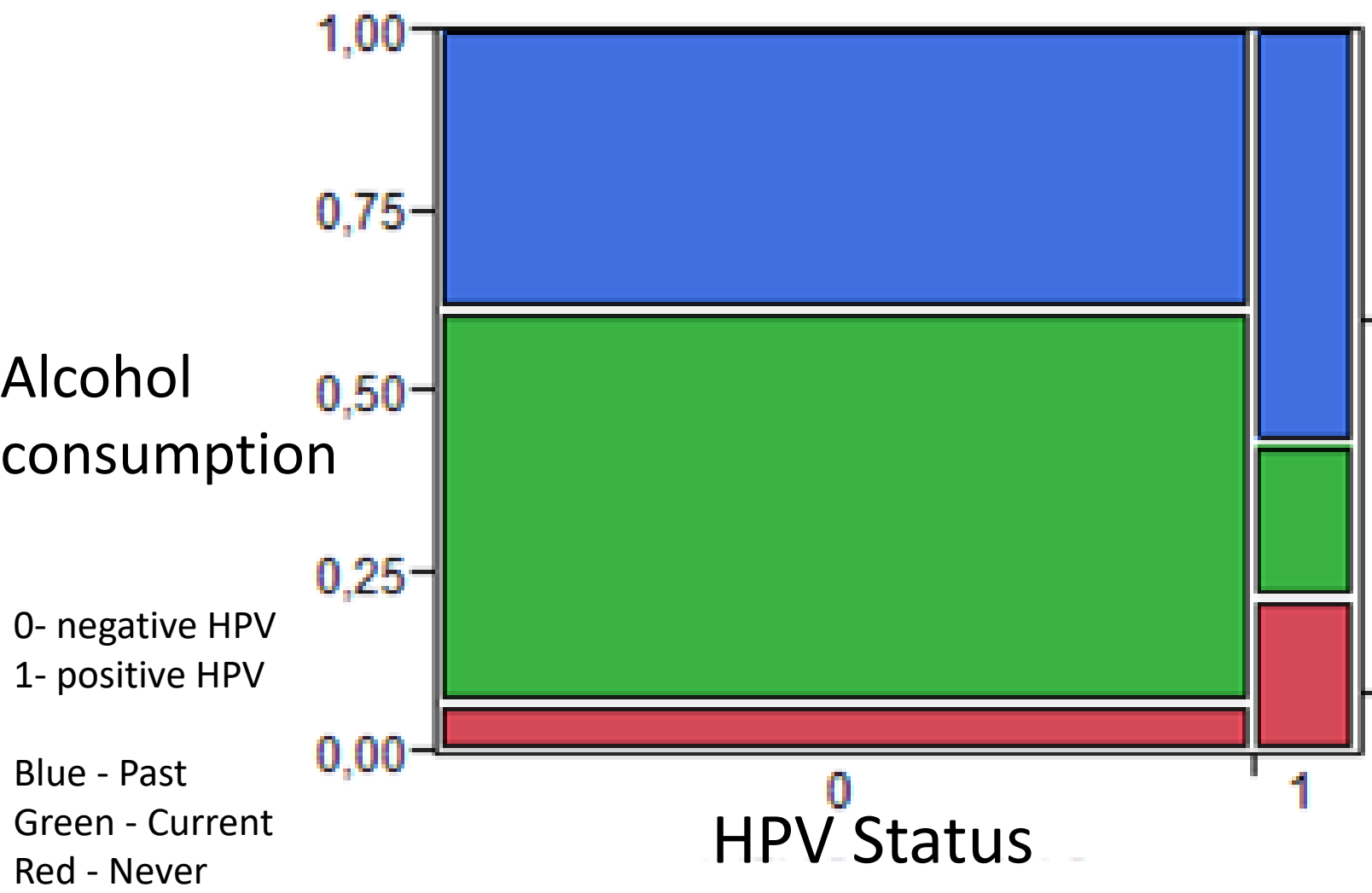
This is the largest Brazilian study on HPV prevalence in HNSCC. The overall prevalence of HPV in HNSCC in the Public Health System is lower than in other developed countries. We also found lower smoking and drinking rates, younger age, and higher BMI in patients with HPV+OP tumors. As for the higher prevalence of non-whites, this can be related to the ethnic distribution of the Brazilian population. We also detected some signals of a possible association of HPV status and age and education in Larynx cancer. The highest five-year survival rate in oropharyngeal HPV patients in our population is also in agreement with previous data in the literature. As a limitation of the study, multivariate analysis was not performed due to a low HPV positivity in our sample.

Positivity per Site

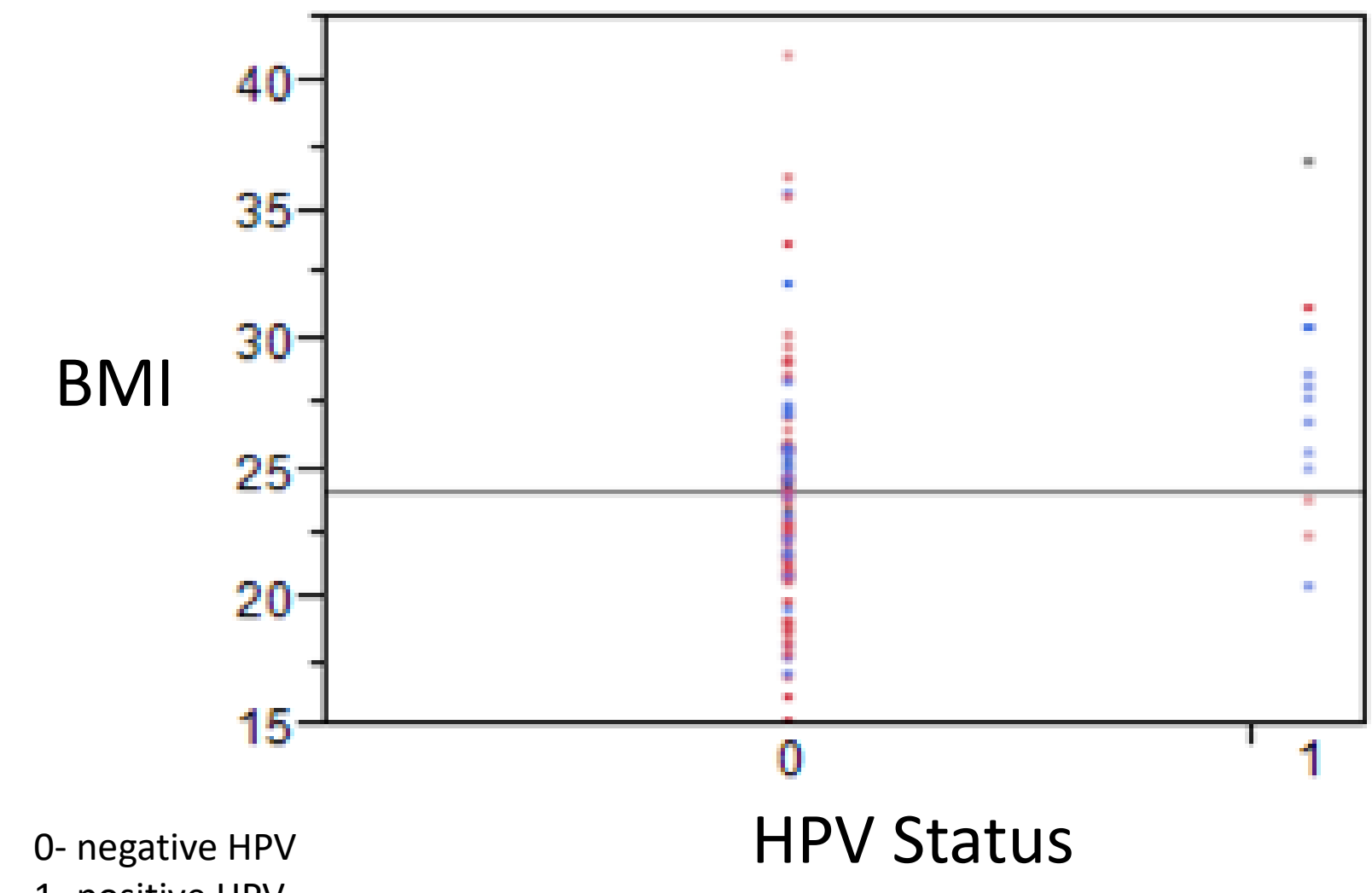
	Oral Cavity	Oropharynx	Larynx	Hypopharynx	Total
HPV negative	272	115	231	73	691
HPV positive	24	15	28	3	70
% positivity	8.1	11.5	10.8	3.9	9.2

Oropharynx

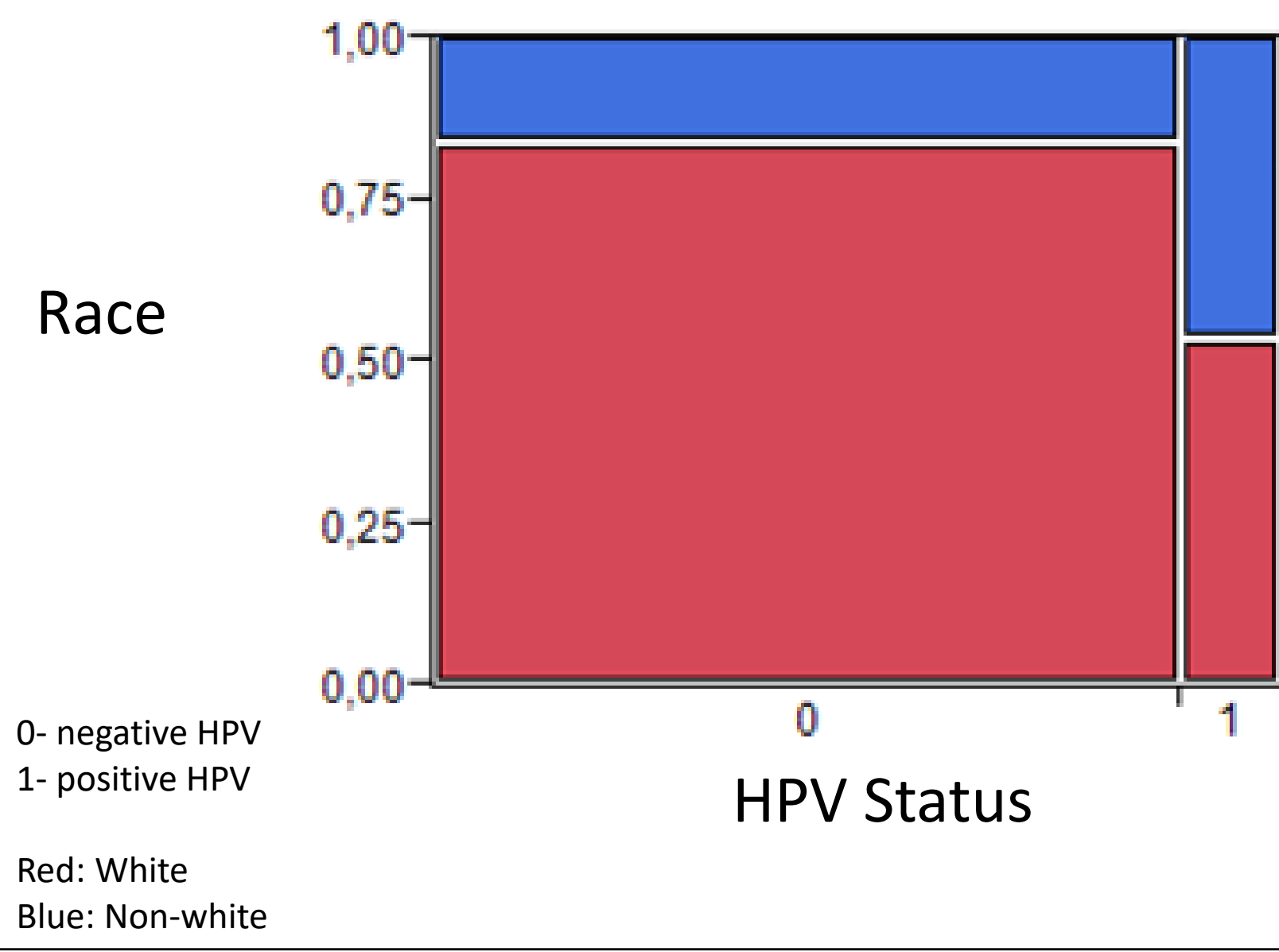
Alcohol consumption according HPV status



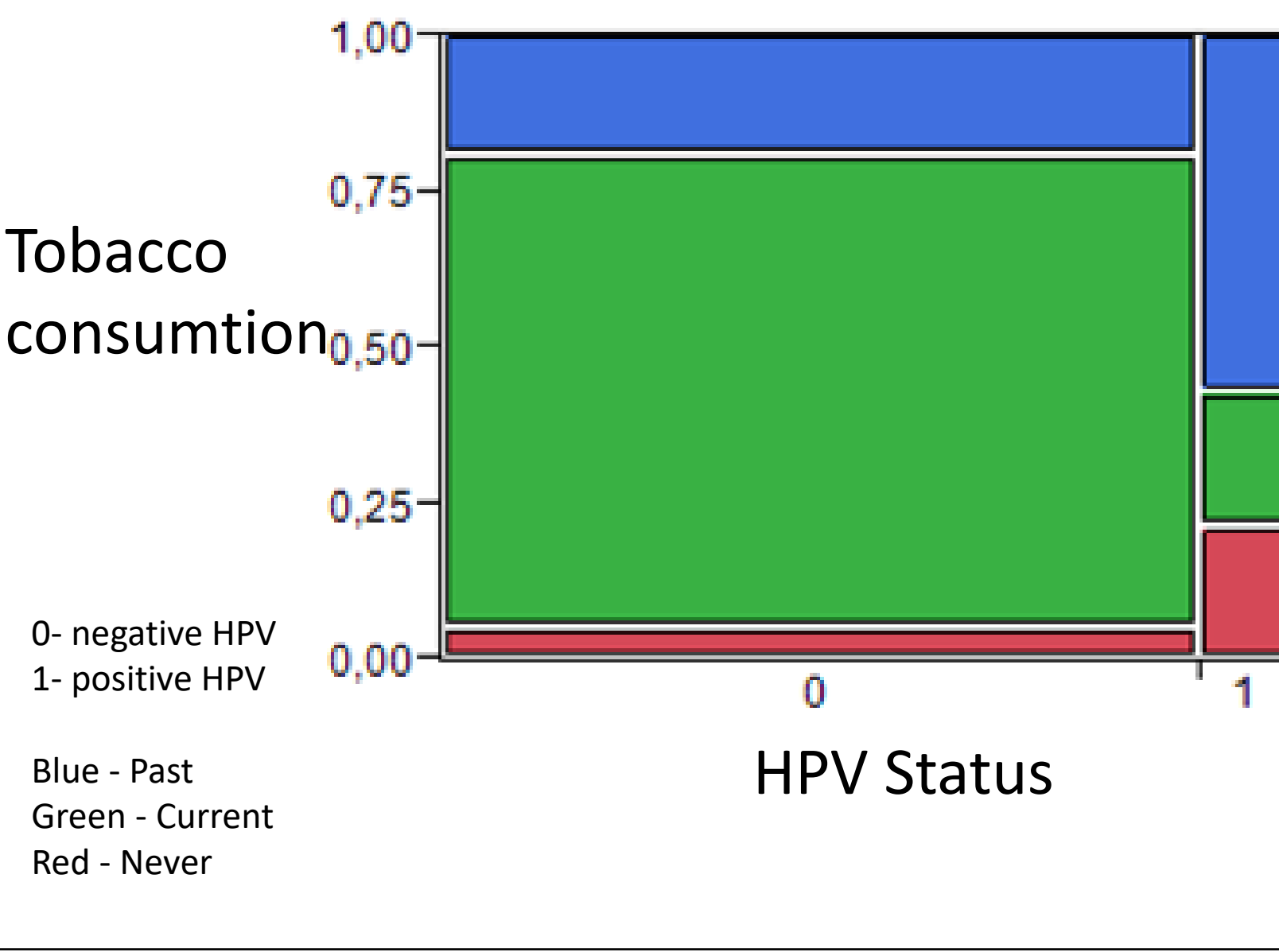
BMI according HPV status



Race distribution according HPV status

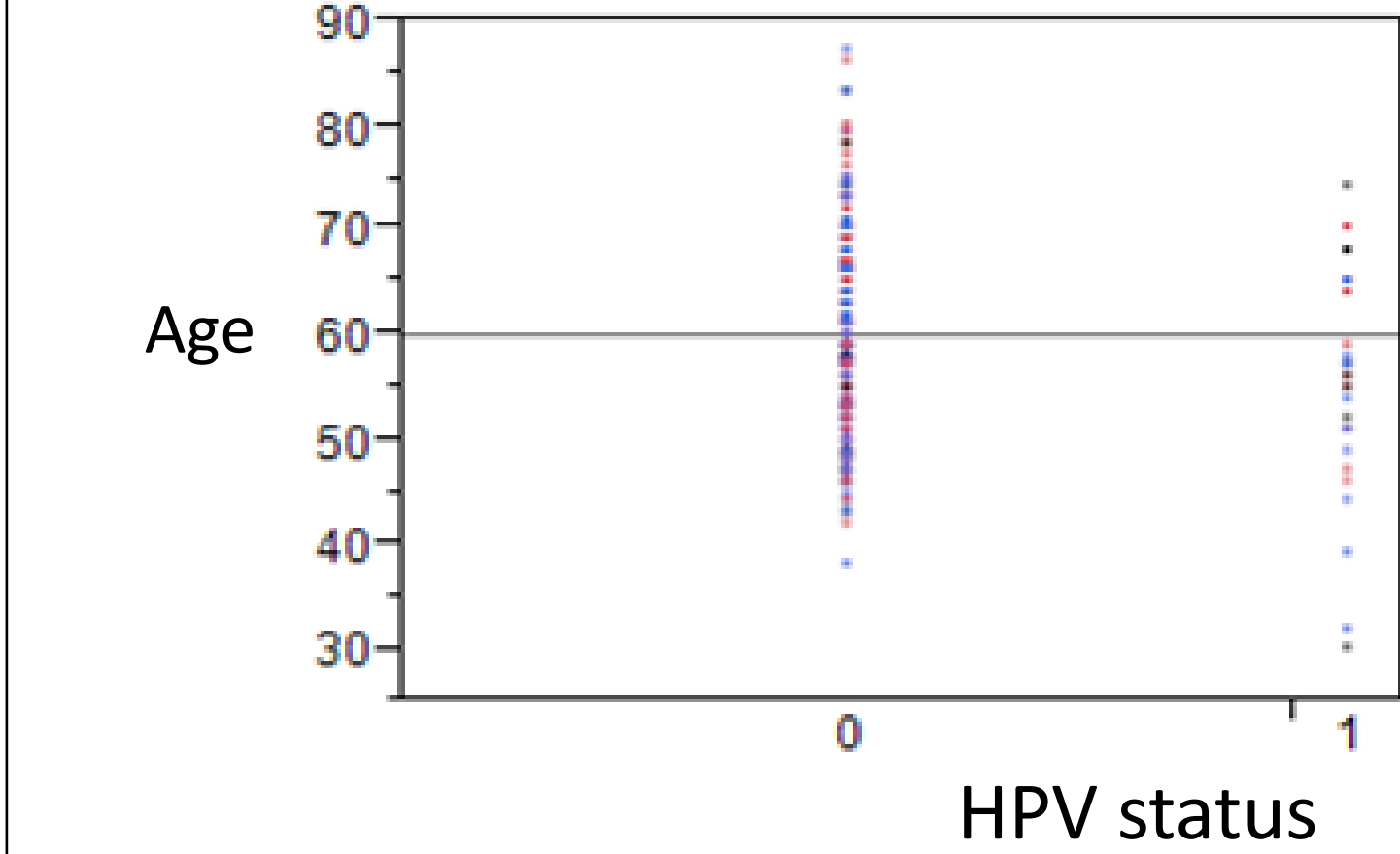


Tobacco consumption accorging HPV status



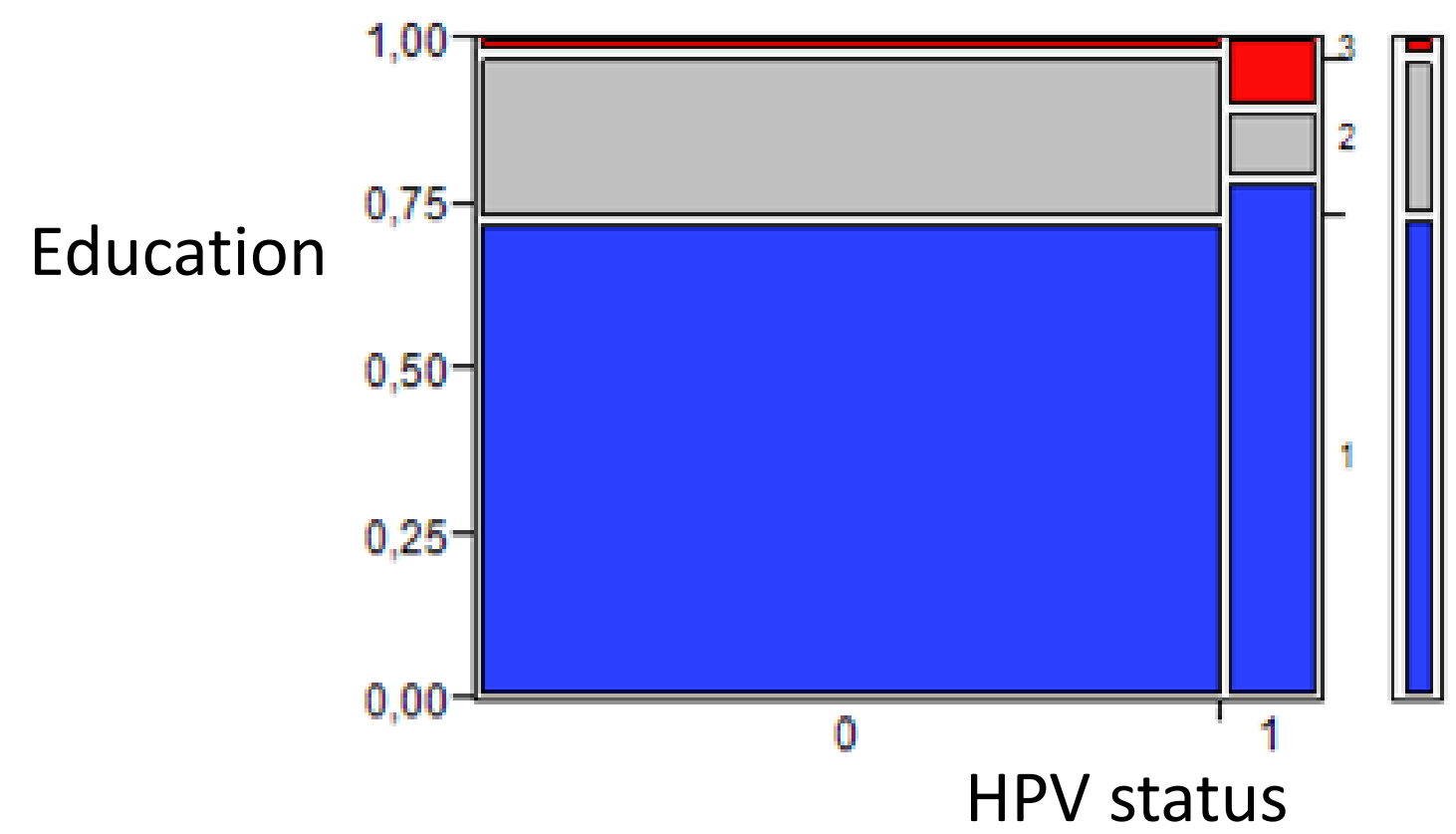
Larynx

Age according to HPV status



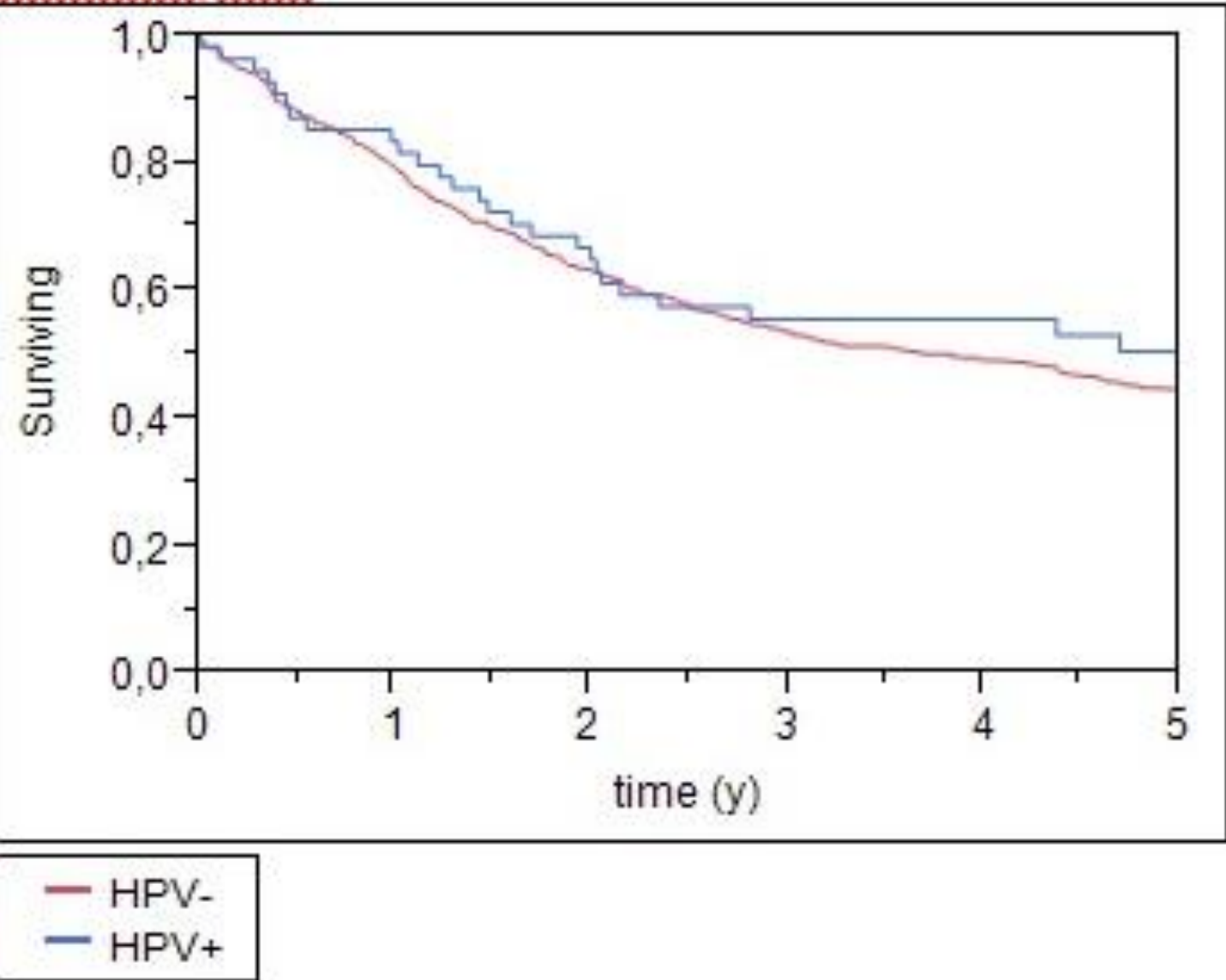
0- negative HPV
1- positive HPV
Age in years

Education according to HPV status

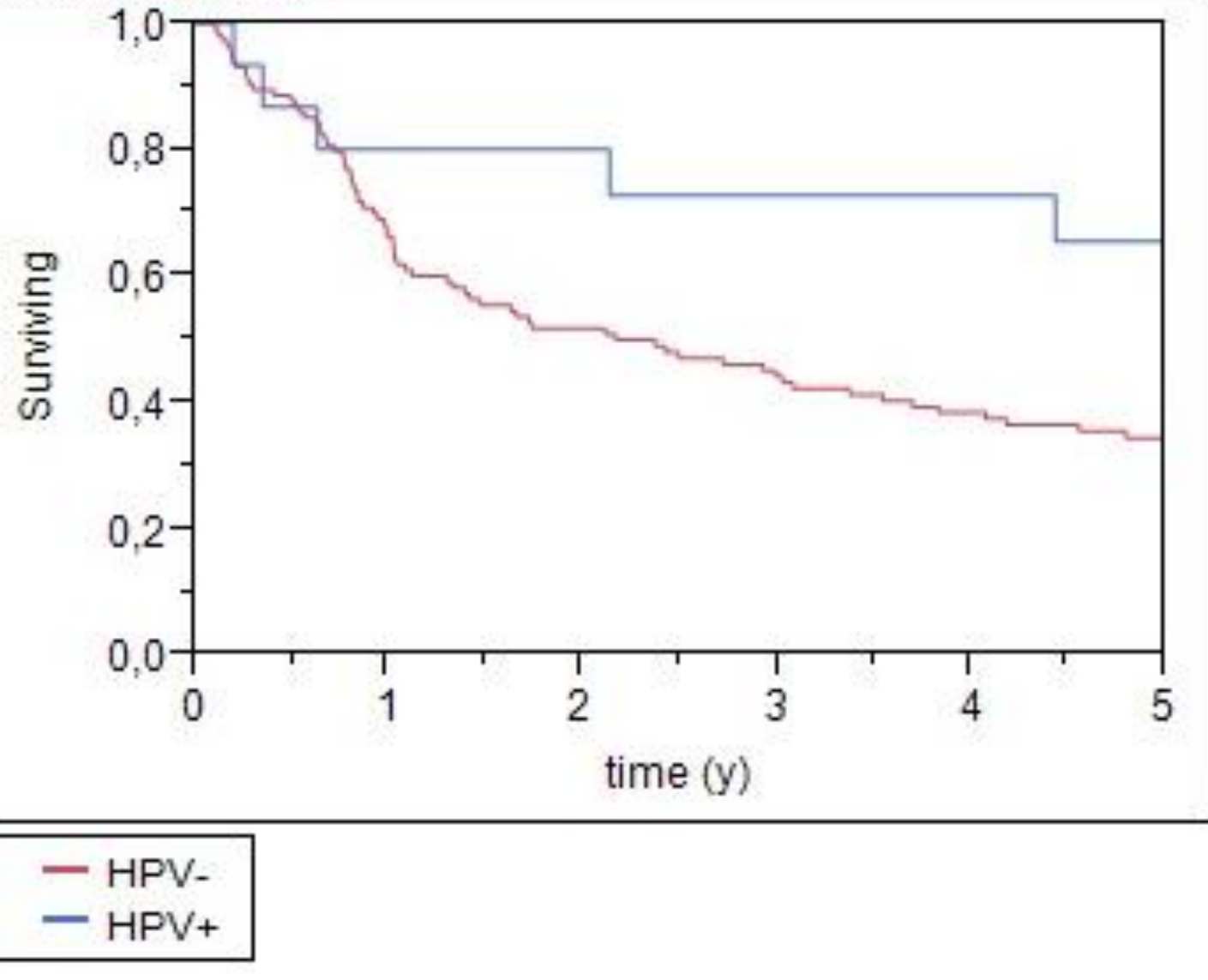


0- negative HPV
1- positive HPV
Blue - Elementary School
Grey - High School
Red - Higher Education

Survival Plot – Non- Oropharynx (NOP)



Survival Plot – Oropharynx (OP)



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