

## BMI and HNC risk

**Table S1.** Stratified analysis of association between BMI and risk of SCCHN among cases

Characteristic	Underweight Adjusted OR (95% CI) <sup>a</sup>	Normal <sup>b</sup> Adjusted OR (95% CI) <sup>a</sup>	Overweight Adjusted OR (95% CI) <sup>a</sup>	Obese Adjusted OR (95% CI) <sup>a</sup>
Age, years		1.0		
<50	1.7 (0.7-4.1)		0.7 (0.5-1.0)	0.8 (0.6-1.1)
≥50	23.5 (1.5-7.9)	1.0	0.7 (0.6-0.9)	0.8 (0.6-0.9)
Sex				
Male	3.4 (1.3-8.9)	1.0	0.7 (0.6-0.8)	0.7 (0.6-0.9)
Female	2.1 (1.0-4.5)	1.0	0.7 (0.5-1.0)	0.9 (0.6-1.2)
Race/ethnicity				
Non-Hispanic white	3.0 (1.5-5.8)	1.0	0.8 (0.6-0.9)	0.9 (0.7-1.1)
Other	1.2 (0.3-4.1)	1.0	0.4 (0.2-0.6)	0.4 (0.2-0.6)
Stage				
I/II	2.2 (1.0-4.8)	1.0	0.7 (0.5-0.8)	0.8 (0.6-1.0)
III/IV	2.8 (1.5-5.1)	1.0	0.7 (0.6-0.8)	0.8 (0.6-0.9)

<sup>a</sup>Unconditional logistic regression model adjusting for age, sex, race/ethnicity, smoking status, alcohol use status, tumor site, stage, and an interaction term. <sup>b</sup>Reference category.

**Table S2.** Association between BMI and HPV status in SCCOP among cases

	No. (%) E6/7(+) (N = 402)	No. (%) E6/7(-) (N = 280)	Crude OR (95% CI)	Adjusted OR (95% CI) <sup>a</sup>
Underweight	3 (0.8)	9 (3.2)	0.4 (0.1-1.6)	0.5 (0.1-2.1)
Normal weight	67 (16.7)	83 (29.6)	1.0 (Ref)	1.0 (Ref)
Overweight	149 (37.1)	95 (33.9)	1.9 (1.3-2.9)	1.7 (1.1-2.6)
Obese	183 (45.5)	93 (33.2)	2.4 (1.6-3.7)	2.3 (1.5-3.5)

<sup>a</sup>Unconditional logistic regression model adjusting for age, sex, race/ethnicity, smoking status, alcohol use status, tumor site, stage, and an interaction term.

**Table S3.** Association between BMI and HPV E6/7 antibody serostatus among patients with SCCOP stratified by sexual behavior

Characteristic	No. (%) E6/7(+) (N = 479)	No. (%) E6/7(-) (N = 203)	Underweight Adjusted OR (95% CI) <sup>a</sup>	Normal <sup>b</sup> Adjusted OR (95% CI) <sup>a</sup>	Overweight Adjusted OR (95% CI) <sup>a</sup>	Obese Adjusted OR (95% CI) <sup>a</sup>
Lifetime number of sex partner				1.0		
<5	60 (28.6)	34 (44.2)	NC <sup>b</sup>		0.9 (0.3-3.0)	1.1 (0.3-3.4)
≥5	150 (71.4)	43 (55.8)	NC <sup>b</sup>	1.0	2.2 (1.1-5.5)	2.4 (1.0-5.9)
Missing	269	126				
Ever oral sex						
No	12 (4.8)	17 (18.5)	NC <sup>b</sup>	1.0	0.7 (0.1-6.5)	1.4 (0.1-13.7)
Yes	240 (95.2)	75 (81.5)	0.2 (0.0-2.3)	1.0	1.6 (1.2-3.2)	1.6 (1.1-3.2)
Missing	227	111				
Lifetime number of oral sex partners						
<4	91 (44.6)	42 (60.0)	NC <sup>b</sup>	1.0	2.0 (0.7-5.4)	1.7 (0.7-4.6)
≥4	113 (55.4)	28 (40.0)	0.4 (0.0-7.1)	1.0	1.9 (1.1-5.9)	2.1 (1.2-6.5)
Missing	275	133				

Reference category. <sup>a</sup>Unconditional logistic regression model adjusting for age, sex, race/ethnicity, smoking status, alcohol use status, tumor site, stage, and an interaction term. <sup>b</sup>NC: not calculable because of 0 cells (0 +controls).