

# Associations of smokeless tobacco (snuff-use) with site-specific cancer risk in adult black South African women: findings from the Johannesburg Cancer Study

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**INTRODUCTION:** In South Africa, traditional and social practices influence the use of smokeless tobacco (SLT) products, particularly in women. SLT use is an established carcinogen, but few studies have been conducted in African populations with their specific exposure routes, ages and intensity. We investigated SLT use and the risk of site-specific cancers among women in Johannesburg, South Africa.

**METHODS:** Among the 15,703 adult black females diagnosed with cancer in the Johannesburg Cancer Study, we designed case-control studies across a range of cancer outcomes. We analysed risks of cancers previously found to have sufficient evidence of an association with SLT use according to the IARC monographs - namely lip oral cavity and pharynx (n=259), oesophagus (n=548) and pancreas (n=81) - and other cancers with insufficient association with SLT use (n>50). A constant control group (n=1,179) was used throughout, made up of patients with cancers that have limited or no association with SLT/tobacco. The relative risk of cancer due to snuff use was estimated from logistic models to give multivariate-adjusted odds ratios.

**RESULTS:** 26% of females ever used snuff, with an average prevalence of 16% for women <40 years rising to 32% at ages 60+. Ever versus never snuff use was not clearly associated with cancer of the oesophagus (OR 1.13; 95%CI: 0.89 - 1.43), lip oral cavity and pharynx (OR 0.71 (0.49 - 1.03)) nor pancreatic cancer (OR 0.89 (0.52 - 1.49)). Ever snuff use was associated with an increased risk of cervical cancer (OR 1.17 (1.00 - 1.36)), bone cancer (OR 1.97 (1.03 - 3.81)) and eye and adnexa cancer (OR 2.28 (1.18 - 4.40)).

**CONCLUSION:** Snuff use may increase the risk for specific cancers. Further confirmatory work with more detailed exposure timing, intensity and routes, is needed to ascertain the effects of snuff use on cancer risk with a particular focus on cervical, bone, eye and adnexa cancer.

Keywords: smokeless tobacco use, snuff use, cancer, South Africa, Johannesburg cancer study

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