

Burden of Oral Cancer and Its Attributable Risk Factors in 204 Countries and Territories, 1990- 2021: Results from the Global Burden of Disease Study 2021

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Abstract

Introduction: Understanding global trends in oral cancer incidence, mortality, and disability-adjusted life years (DALYs) are essential to inform resource allocation, guide clinical practice, and support effective public health policies. This study aims to determine the global, regional, and national burdens of oral cancer in 204 countries and territories from 1990 to 2021 by age, gender, and sociodemographic index. **Methods:** Data on oral cancer from 1990 to 2021 were extracted from the Global Burden of Disease (GBD) 2021 study. Incidence, mortality, DALYs, and age standardized rates (ASR) per 100,000 population of oral cancer were analyzed, along with attributable risk factors. **Results:** There were 421.58 thousand incident cases of oral cancer in 2021, with an age standardized annual incidence rate of 4.88 , which increased by 0.14% between 1990 and 2021. Oral cancer was responsible for 208.38 thousand deaths globally in 2021 with an age standardized death rate of 2.42 , a decrease of 0.01 % between 1990 and 2021. Moreover, oral cancer accounted for 5874.07 thousand DALYs at the global level in 2021, with an age standardized rate of 67.71 DALYs per 100,000 population. The standardized DALY rate increased by 0.03% from 1990 to 2021. At regional level, South Asia exhibited the highest age-standardized incidence (9.79), death (6.52), and DALY (182.29) rates for oral cancer. Australasia and Eastern Europe also showed high age-standardized incidence rates, while Central Europe and Southern Sub-Saharan Africa presented elevated age-standardized death rates, and Central Europe and Eastern Europe ranked highly for age-standardized DALY rates. At national level, Palau (26.52/100 000) had the highest age standardized incidence rates of oral cancer in 2021. The aforementioned country also had the highest age-standardized death and DALY rates of oral cancer. Age-standardized incidence and death rates were higher in male than female individuals and increased with population aging. Globally, smoking (22.3%), alcohol use (20.3%), and chewing tobacco (18.8%) had the top three highest percent of attributable DALYs owing to oral cancer in 2021 for both sexes. **Conclusions:** This study found age-standardized oral cancer incidence showed a slight increase, while mortality and DALY rates were relatively stable or slightly decreased globally. However, significant national variations warrant targeted prevention strategies in high-burden countries to mitigate the overall disease burden.

Keywords

Burden of Disease, Disability-adjusted Life Years, Incidence, Mortality, Oral Cancer, Risk Factors