

# Evolving Tobacco Consumption in Sub-Saharan Africa

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## ABSTRACT

Tobacco smoking is the single most important determinant of avoidable morbidity and mortality worldwide. In Sub-Saharan Africa smoking of manufactured cigarettes tends to be more frequent among urban dwellers while subjects living in rural areas are more often consumers of smokeless tobacco and hand-rolled cigarettes. The rural-to-urban migration is an important demographic phenomenon in Sub-Saharan Africa, and this shift will contribute to a faster transition through the stages of the tobacco epidemic than has been observed in higher-income countries. The widespread diffusion of cigarette smoking in developing settings will expectedly exacerbate worldwide health disparities between nations. The understanding of the patterns and dynamics of tobacco consumption in Sub-Saharan Africa is essential to develop and monitor locale-specific control strategies.

**PALAVRAS-CHAVE:** TOBACCO; SMOKING; AFRICA; EPIDEMIOLOGICAL TRANSITION

## A EVOLUÇÃO DO CONSUMO DO TABACO NA ÁFRICA SUBSARIANA

### RESUMO

O consumo de tabaco é a principal causa de morbidade e mortalidade a nível mundial. Na África Subsariana, o consumo de cigarros manufacturados é em geral mais frequente nos meios urbanos enquanto os habitantes de zonas rurais adoptam mais frequentemente formas tradicionais de consumo de tabaco. A migração para as zonas urbanas é um fenómeno demográfico com importância crescente na África Subsariana, e esta transição deverá contribuir para uma evolução no sentido dos estádios mais avançados da epidemia tabágica mais rapidamente do que se observou nos países mais afluente. A generalização do consumo de cigarros manufacturados nos países menos desenvolvidos contribuirá previsivelmente para acentuar as disparidades entre nações relativamente ao estado de saúde das populações. A compreensão dos padrões e dinâmica do consumo de tabaco na África Subsariana é essencial para o desenvolvimento e monitorização de estratégias de controlo a nível local.

**KEY-WORDS:** TABACO; ÁFRICA; TRANSIÇÃO EPIDEMIOLÓGICA

**Sub-Saharan Africa is now facing a double burden of disease, with HIV/AIDS, malaria and diarrhoeal diseases still being the leading causes of death<sup>1</sup>, and several factors, including the large size of the population, urbanization and increased exposure to risk factors such as obesity, diabetes, dyslipidemia, hypertension and smoking, contributing to an increasing frequency of non-communicable diseases<sup>2,3</sup>, namely cardiovascular disease, cancer and chronic respiratory disease, with a consequent stretching of limited health care resources<sup>4</sup>.**

## TOBACCO-RELATED DISEASES

Tobacco smoking is the single most important determinant of avoidable morbidity and mortality worldwide<sup>5</sup>. Its causal relation with an increasing number of cancers and cardiovascular diseases is well established, with the strongest associations being observed for respiratory tract cancers (**Figure 1**)<sup>6-18</sup>. Several other diseases are causally associated with tobacco consumption, namely respiratory diseases (chronic obstructive pulmonary disease, pneumonia, adverse respiratory effects from in utero to adulthood)<sup>19</sup>. Tobacco smoking was also shown to increase the risk of tuberculosis infection [summary RR=1.73, 95% confidence interval (95%CI): 1.46-2.04] and tuberculosis disease (summary RR=2.27, 95% CI: 1.90-2.71)<sup>20</sup>. This is particularly important in developing countries due to the high burden of tuberculosis, and because the acknowledgement of this relation can have a greater resonance in the general population than the association with other diseases perceived as less

likely to affect a large proportion of subjects in these settings.

Smokeless tobacco consumption is frequent in many African countries<sup>21</sup> but its putative health consequences are still controversial<sup>22-23</sup>. Consistent results supporting a causal relation are available mostly for oropharyngeal cancer (summary OR=1.36, 95%CI 1.04-1.37)<sup>22</sup>, and for death from myocardial infarction (OR=1.13, 95%CI 1.06-1.21) and stroke (OR=1.40, 95%CI 1.28-1.54)<sup>23</sup>.

## SUB-SAHARAN AFRICA AND THE TOBACCO EPIDEMIC

In Sub-Saharan Africa the patterns of tobacco consumption vary widely, both between and within countries<sup>24</sup>. Despite this heterogeneity, the prevalences of tobacco use, as well as the amounts consumed, are usually higher among men, irrespective of age and ethnicity<sup>24</sup>, and cigarette smoking is increasing among women<sup>25</sup>. The sales of tobacco products to women in developing countries represent one of the largest product marketing opportunities for the tobacco industry<sup>26</sup>. Among men, the highest prevalences of tobacco consumption were observed among Coloured males in South Africa (79%)<sup>27</sup> and the lowest in Nigerian undergraduate students (9%)<sup>28</sup>. In women, the highest prevalences were recorded among Luo Kenyans (67%)<sup>29</sup> and the lowest among Nigerian general medical patients (0.3%)<sup>30</sup>. Nationwide data from 14 Sub-Saharan African countries<sup>31</sup> showed cigarette smoking prevalences ranging from 8.0% in Nigeria to 27.3% in Madagascar, among men, and between 0.1% in Gha-

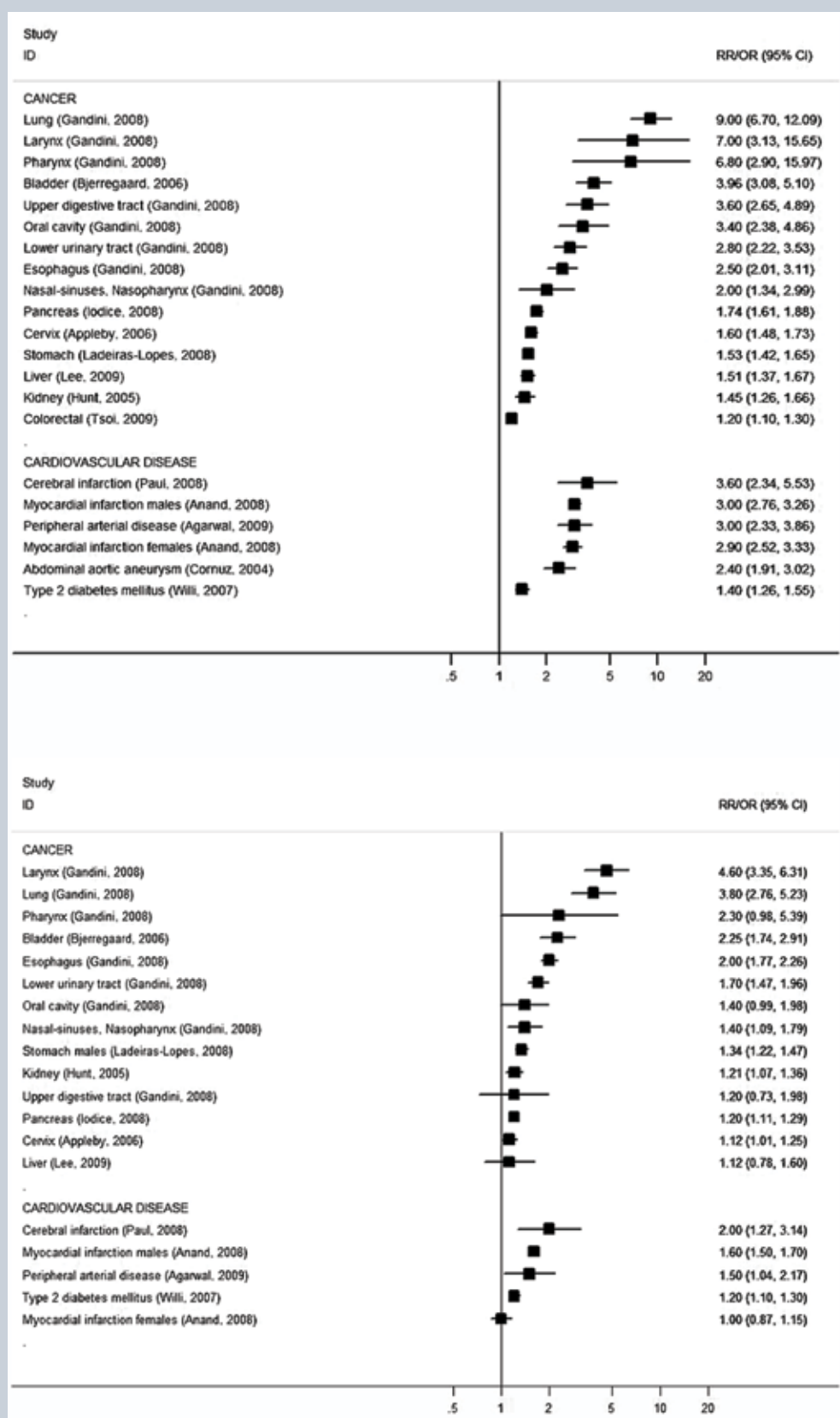
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FIGURE 1 - Published estimates of the association between smoking (current and former) and cancer and cardiovascular disease.



na and 5.9% in Namibia, among women.

Studies addressing urban/rural differences showed tobacco product-specific patterns<sup>24</sup>, with urban dwell-

ers more likely to be cigarette smokers while subjects living in rural areas were more often consumers of other forms of tobacco that are more accessible in

these settings<sup>31,32</sup>. The prevalence of consumption of smokeless tobacco and hand-rolled cigarettes, is highest in Lesotho, Madagascar, Mozambique, Namibia and Zambia, ranging from 10.4% to 25.1%, and lowest (below 2%) in Ghana, Nigeria, Ethiopia, Kenya, Zimbabwe, and Tanzania<sup>31</sup>.

Although the morbidity and mortality burden resulting from smokeless tobacco consumption is expectedly lower, in some African populations the use of traditional forms of tobacco may account for a large proportion of the overall consumption<sup>21</sup>. This raises concerns regarding the potential for the shift towards manufactured cigarette smoking and a steep increase in consumption, fueled by urbanization and increasing income. A recent report from a study conducted in Mozambique<sup>33</sup>, showed that the prevalence of tobacco consumption among the urban Maputo City inhabitants varied with the place of birth; those born in predominantly rural provinces depicted a pattern of consumption in between the observed in Maputo City and their provinces of origin. The rural-to-urban migration is an important demographic phenomenon in Sub-Saharan Africa, as the estimates of 35% of the population living in urban areas in 2005 are expected to rise to 61% in 2050<sup>34</sup>. This rural-urban shift will contribute to a faster transition through the stages of the tobacco epidemic than has been observed in the higher-income countries, making smoking more

accessible during the early stages of the epidemiological transition that the region is currently undergoing.

According to the social diffusion theory<sup>35</sup>, cigarette smoking would first be experimented by highly educated and affluent people and subsequently diffuse to members of less privileged classes, but a clear and consistent relation between socioeconomic status and tobacco use has not been observed in Sub-Saharan Africa<sup>24</sup>. In these settings, traditional forms of tobacco were used centuries before the arrival of western tobacco products, partly explaining why the historical pattern of tobacco diffusion in high-income nations at advanced stages of the tobacco epidemic does not provide a model to understand the current consumption patterns in Sub-Saharan countries<sup>36</sup>.

In conclusion, the widespread diffusion of cigarette smoking to developing settings will expectedly exacerbate worldwide health disparities between nations, leading to an increasing burden of non-communicable diseases in countries still facing a high burden due to communicable diseases and to maternal, perinatal, and nutritional conditions. The specific patterns of tobacco consumption, by gender, type of tobacco product and degree of urbanization, pose different challenges to tobacco control. The understanding of the extent, as well as the social, cultural and economical distribution of the problem in Sub-Saharan Africa is essential to develop and monitor locale-specific control strategies.

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