Informing policy makers on the efficiency of population level tobacco control interventions in Asia: A systematic review of model-based economic evaluations

Ariuntuya Tuvdendorj, Yihui Du, Grigory Sidorenkov, Erik Buskens,
Geertruida H. de Bock, Talitha Feenstra

Background: Economic evaluations of tobacco control interventions support decisions regarding resource allocation in public health policy. Our systematic review was aimed at identifying potential bias in decision models used to estimate the long-term costs and effects of population-based tobacco control interventions in Asia.

Methods: We included studies conducted in Asian countries and using a modelling technique to evaluate the economic impacts of one or more population-based tobacco interventions in line with the Framework Convention on Tobacco Control (FCTC). We assessed the structure, input parameters, and risk of bias for each model, and performed a narrative synthesis of the included studies.

Results: Nine model-based economic evaluation studies of population-based tobacco interventions were identified. About 60% of the criteria for reporting quality were met in all studies, indicating that reporting generally lacked transparency. The studies were highly heterogeneous in terms of the scope, types, and structures of their models and the quality of input parameters. One-third of the models applied in the studies scored a high risk of bias, with problems mostly falling into the following categories: model type, time horizons, and smoking transition probabilities.

Conclusion: More data is needed to provide high-quality evidence regarding the cost-effectiveness of tobacco control policies in Asia. Strong evidence at the country level hinges on the availability of accurate estimates of the effects of the interventions, the relative risks of smoking, and the price elasticity of the demand for tobacco. Simple transfers of models built in Western populations do not suffice.