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Socioeconomic status and lung cancer incidence: An analysis of 19 prospective cohorts from 4 continents

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Background: In some settings, lung cancer incidence appears higher among disadvantaged groups. We analyzed the harmonized database of the Lung Cancer Cohort Consortium (LC3) to assess the relationship between socioeconomic status and lung cancer incidence across different world regions.
Methods: We analyzed 19 prospective cohorts from 16 countries in North America, Europe, Asia, and Australia. Separately for never or currently/formerly smoking participants, we estimated the association between educational level (as a proxy for socioeconomic status, modeled in 4 categories) and incident lung cancer using Cox proportional hazards models. Models were adjusted for age, sex, and where applicable, smoking duration, cigarettes per day, and time since cessation.
Results: Among 2.4 million participants, 58,785 developed lung cancer (median follow-up 12.6 years). Among current/former smoking participants, higher educational level was associated with decreased lung cancer incidence in nearly all cohorts. By world region, this association was similar for North America (HRpooled=0.88, 95%CI:0.87-0.89), Europe (HRpooled=0.89, 95%CI:0.88-0.91), and Asia (HRpooled=0.91, 95%CI:0.86-0.96), but attenuated in the Australian Melbourne Collaborative Cohort Study (HR=1.02, 95%CI:0.95-1.09). The association with education was strongest for squamous cell carcinoma and weakest for adenocarcinoma ($p<0.001$ separately in current and former smoking participants). Among never smoking participants, there was no statistically significant association between education and lung cancer incidence in any cohort (all p-trend>0.05), except for the US Southern Community Cohort Study (HR=0.75, 95%CI: 0.62-0.90).
Conclusion: Among cohort participants from 16 countries, higher socioeconomic status showed a strikingly consistent association with decreased risk of lung cancer among currently/formerly smoking individuals, but not never smoking individuals.

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