



Apprivoiser les méthodes

AXE CARREFOUR DE L'INNOVATION

Comparing logistic and log-binomial models for causal mediation analyses of binary mediators and rare binary outcomes: case-report evidence to support cross-checking of mediation results in practice

In the binary outcome framework to causal mediation, standard expressions for the natural direct and indirect effect odds ratios (ORs) are established from a logistic model by invoking several approximations that hold under the rare-disease assumption. Such ORs are expected to be close to corresponding effects on the risk ratio (RR) scale based on a log-binomial model, but the robustness of interpretation to this assumption is not documented. The objective was to report on mediation results from these two models when the incidence of the outcome was <10%.

Standard (approximate) ORs and RRs were estimated using data on pregnant asthmatic women from Québec. Prematurity and low-birthweight were the mediator and outcome variables, respectively, and two binary exposure variables were considered: treatment to inhaled corticosteroids and placental abruption. Exact ORs were also derived and estimated using a contributed SAS macro. Simulations which mimicked our data were subsequently performed to replicate findings.

Many approximate ORs and RRs estimated from our data did not closely agree. Approximate ORs were systematically observed farther from RRs in comparison with exact ORs. Exact OR estimates were very close to RR estimates for exposure to inhaled corticosteroids, but less so for placental abruption. Approximate OR estimators also exhibited important bias and undercoverage in simulated scenarios which featured a strong mediator-outcome relationship.

La présentation sera donnée en français avec des diapositives en anglais

PRÉSENTATEUR

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Le mardi 27 février de 12 h à 13 h 30

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