Carta aos editores

Measures of effect for cross-sectional studies
Medidas de associação nos estudos transversais

Dear Editor,

Measures of effect are used to compare the frequency of a disease and therefore can be used to study the associations between frequency of disease and risk factors.[1] It is possible to compare any measure of frequency of disease (Odds, Risk, Rate, Prevalence) using the difference between them (absolute effect: Rate Difference, Risk Difference, Excess Risk) or the ratio between them (relative effect: Odds Ratio (OR), Risk Ratio, Rate Ratio, Prevalence Ratio). Reporting one or another measure of effect will mostly depend on the study design and the frequency of disease.[2] For cross-sectional studies a commonly reported measure of effect is the Odds Ratio, rather than the Prevalence Ratio which is a suitable measure of effect for this kind of study design.

It is common for ORs to be wrongly interpreted as Risk Ratios. For common mental disorders it can greatly overestimate the Prevalence Ratio and the use of OR will not necessarily lead to the same conclusions as from the Prevalence Ratio about effect modification or confounding.[3-5]

Prevalence Ratio is more difficult to estimate in a multivariate setting. Several alternatives have been discussed in the literature for the analysis of binary outcomes in cross-sectional studies using the PR rather than OR. The simplest way is to transform the ORs obtained by logistic regression into PRs.[3,4] Another possibility is to use a statistical model that directly estimates the PR and its confidence interval. Alternatives explored in the epidemiological literature are Cox regression with equal times of follow-up assigned to all individuals, log-binomial regression (a generalized linear model with a logarithmic link function and binomial distribution for the residue), Poisson regression with robust variance and complementary log-log model, where the link function is log (-log $(1-\pi)$ and the distribution is binomial.[3,5]

Although the use of OR for cross sectional studies is not necessarily wrong, authors and referees should be aware of its correct interpretation and alternatives to it for cross sectional studies.

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Modest
Significant
*** Significant. Amounts given to the author's institution or to a colleague for research in which the author has participation, not directly to the author.
Note: CPRR/Fiocruz = Centro de Pesquisas René Rachou da Fundação Oswaldo Cruz; FASEH = Faculdade da Saúde e Ecologia Humana; FAPEMIG = Fundação Amparo à Pesquisa do Estado de Minas Gerais.
For more information, see Instructions for authors.

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